

The Columbus Academy

UPPER SCHOOL 2021-2022



Course Description Guide for Grades 9 - 12

UPPER SCHOOL 2021-2022 Course Description Guide for Grades 9 - 12

Upper School Curriculum Overview

The academic program of Columbus Academy's Upper School seeks to have students embark on their own personal "Quest of the Best" in a manner that emphasizes respect, responsibility, integrity and places a high value on the application of multiple perspective-taking.

The school's college preparatory curriculum requires that students take courses in English, mathematics, science, world languages, social studies, and the arts and maintain a minimum course load of five core classes at all times. Additionally, students must complete a course in health, Ethics and Community, and public speaking in order to meet graduation requirements. Completed in junior year, the public speaking component is seen as a right-of-passage to many Columbus Academy students, as they spend roughly three weeks in focused preparation for delivering a speech to the entire Upper School.

Through myriad experiences both in and out of the physical classroom, students are taught to problem solve, collaborate, think critically, write effectively and speak honestly and thoughtfully. Teachers and advisors develop into mentors, and when combined with parental support, endeavor to nurture the whole student.

Building on skills and habits emphasized and practiced in middle school, upper school students are encouraged to further develop an ability to advocate for their own learning, organize and manage a multi-layered schedule of academic, athletic, service and social responsibilities, and stretch the levels of their intellectual curiosity.

Columbus Academy aspires to graduate young men and women who desire to be life-long learners that recognize the importance of an examined life, individual responsibility, and a duty to others.

Mission Statement

The Columbus Academy - an independent, coeducational, college preparatory school - enriches its academic tradition of excellence by valuing a broad diversity of students, as it seeks to develop the complete person - mind, body and character. The School rewards rigorous effort and accomplishment; fosters compassion, respect and moral courage; and insists on integrity, fair play, and community service. The Academy strives to develop and sustain a community of thoughtful, responsible, capable and confident citizens eager to engage in a pluralistic and ever-changing world.

Diversity Statement

Columbus Academy believes that diversity, inclusion, equity and justice are essential to the excellence of our community, culture and curriculum. We recognize that the pursuit of this excellence requires thoughtful, deliberate and sustained action and that this effort is critical to our educational mission.

Community: We value diversity in all of its dimensions including but not limited to gender, race, ethnicity, religion, sexual orientation, physical abilities, family composition and socio-economic status.

We seek to reflect multiple perspectives, backgrounds and interests in all facets of our community. We recognize that students who are exposed to and embrace diversity are better prepared to engage in a pluralistic world.

Culture and Climate: We strive to be an inclusive community in which each individual feels safe, respected and valued. In building a community that values similarities and differences among its constituents, we seek to embody in our actions and in our relations with one another the principles of equity and justice as well as Columbus Academy's core values of honesty, respect, compassion, responsibility and fairness.

Curriculum: We believe that exposure to multiple – and even sometimes competing – points of view best equips students to explore, understand and apply complex concepts, building the basis for a rigorous education. By weaving diversity into the fabric of our curriculum, we equip our students with the interpersonal and critical thinking skills that are essential to success in the complex, multicultural world in which we live.

Columbus Academy adheres to the National Association of Independent Schools (NAIS) Principles of Good Practice for Equity and Justice.

Non-Discrimination Policy

Columbus Academy encourages and welcomes applications from students without regard to race, creed, sexual orientation, religion or national origin and does not discriminate in the administration of its educational policies, financial aid programs and school-administered extracurricular programs.

GRADUATION REQUIREMENTS

Twenty credits are required to graduate. The following credits are part of the graduation total:

- 4.....credits of English
- 4.....credits of Mathematics (including Algebra 2)
- 3.....credits of a single World Language or two credits of two World Languages
- 3.....credits of History: World History, World History 2 (or Honors World History 2), and United States History/Honors United States History
- 3.....credits of Science: Biology, Chemistry and Physics
- 1.....credit of study in the Fine Arts or Performing Arts

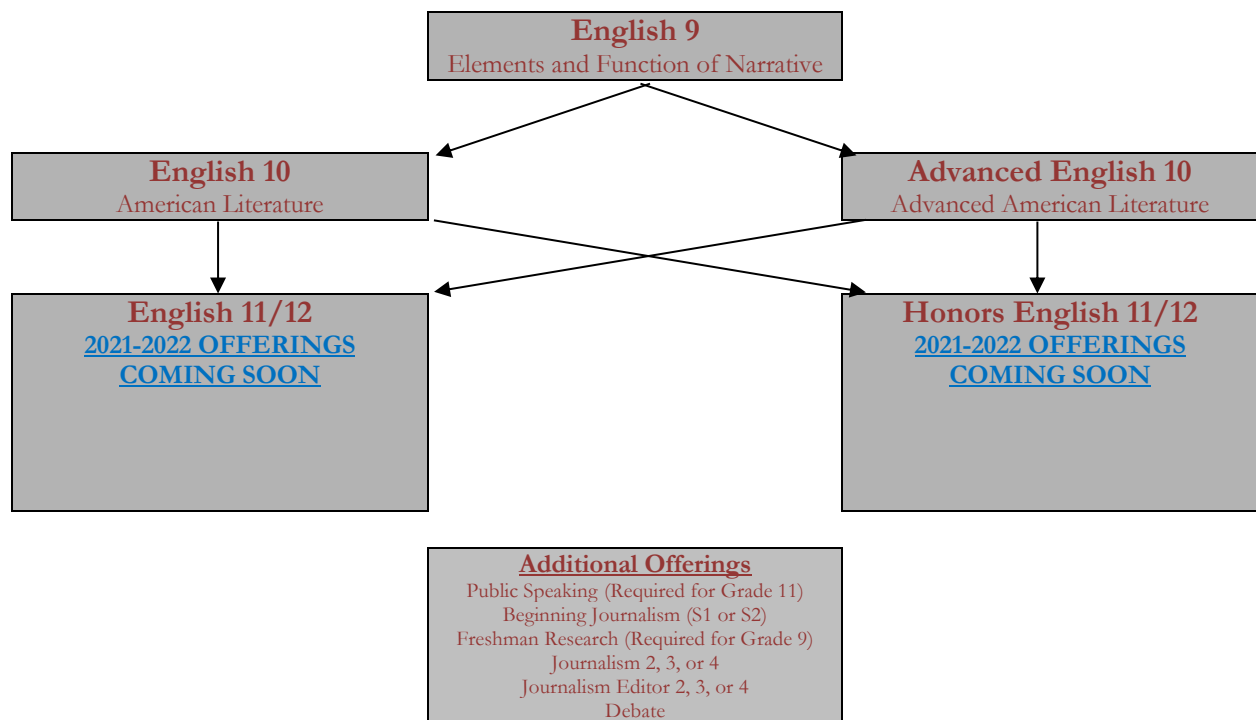
All students must take a minimum of 5 credits in core courses per year.

In addition to the graduation requirements outlined above, students must satisfactorily complete the following in order to receive an Academy diploma: Ethics and Community, Health, 6 units of Physical Education, the Junior Speech, the Senior Project, Summer Reading Requirements, and the Community Service Requirement (50 hours). All full credit courses taken in the senior year must receive a passing grade.

ENGLISH DEPARTMENT (4 Credits Required)

The upper-school English program upholds the school’s academic tradition of excellence and rewards rigorous effort and accomplishment by providing appropriate academic challenges to the school’s full range of students: we develop a solid base of language skills (reading, thinking, speaking, writing) in English 9 and build on that base in standard-, advanced-, and honors-level courses in grades 10-12. The texts that we read offer opportunities for our students to view the world from a diverse range of perspectives; discussing and thinking critically about those texts allow students to engage many variations of the human condition—the intellectual, ethical, moral, emotional, and economic issues raised by texts produced across a wide range of geography and time; writing about those texts allows students to articulate with precision some of the products of that engagement. Ideally, active and thoughtful engagement with texts (and each other) can provide ethical models, can encourage empathy and compassion, and can help young people locate themselves in a wider world.

ENGLISH DEPARTMENT FLOW CHART



English 9-12 Reading Overview

Students will be expected to meet the NCTE Standard for reading:

Students apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate texts. They draw from prior experience, their interactions with other readers and writers, their knowledge of word meaning and other texts, and their understanding of textual features. Students apply knowledge of language structure, media techniques, figurative language, and genre to create, critique, gather and synthesize information.

Skills learned at the middle-school level will be reinforced and expanded upon in grades 9-12. Advanced and Honors students will read both more difficult and a greater number of texts and demonstrate greater competence in comprehension and interpretation.

Reading Objectives

Students will analyze and evaluate elements of written texts. Specifically, students will be able to:

- identify the historical, social and cultural context of the setting and explore its significance.
- explain how voice and narrator affect the characterization, plot and credibility.
- analyze variations of recurring themes within and among texts.
- analyze the relationship between texts and their historical contexts.
- analyze the relationship between form and content, demonstrating an awareness of how formal choices shape argument and effects on readers.
- analyze and critique organizational patterns and techniques including repetition of ideas, appeals to authority, reason and emotion, syntax, and word choice that authors use to accomplish their purpose and reach their intended audience.
- analyze how complex characters (e.g., those with multiple or conflicting motivations) develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
- evaluate ways authors develop point of view and style to achieve specific rhetorical and aesthetic purposes (e.g., through use of figurative language, irony, tone, diction, imagery and symbolism), citing specific examples from the text to support analysis.
- determine the meaning of words and phrases as they are used in the text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including words with multiple meanings or language that is particularly fresh, engaging, or beautiful.
- analyze how an author's choices concerning how to structure a text, order events within it (e.g., parallel plots), and manipulate time (e.g., pacing, flashbacks) create such effects as mystery, tension, or surprise.
- compare and contrast an author's use of direct and indirect characterization, and ways in which characters reveal traits about themselves, including dialect, dramatic monologues, and soliloquies.
- examine an author's implicit and explicit philosophical assumptions and beliefs about a particular topic.

ENGLISH 9: Elements and Function of Narrative (Full Year, 1 Credit)

The ninth-grade year focuses on stories from around the world. Students will be exposed to short stories, novels, poetry, and drama. Students will be asked to demonstrate their comprehension by describing and discussing the elements of literature (i.e. setting, plot, and character), analyzing the author's use of language (i.e. figurative language), comparing and contrasting styles, inferring theme

and meaning and responding to texts in critical and meaningful ways. Students will write narrative, compare and contrast, descriptive, and informational forms with an emphasis on literary analysis. Formal, informal, and timed writings will be assigned in response to literature and to writing prompts. Within the writings, students will draw conclusions, collect evidence to support their conclusions, evaluate their evidence, and articulate the relationship between their evidence and their conclusions. Vocabulary, grammar, reading, and visual literacy skills will be correlated with the study of literature and in preparation for standardized testing.

Writing Objectives: At the ninth-grade level, students will write essays in a variety of forms, including argument and literary analysis. Skills introduced at this level, as well as those that were introduced in middle school, will be reinforced and expanded on throughout the CA English curriculum. Students will develop as writers by participating in a process for writing including prewriting, organizing, composing, revising, editing, and when possible or appropriate, publishing. Students will edit writing for correct grammar, capitalization, punctuation, spelling, sentence structure, and paragraphing.

Throughout the year, students will

- employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- apply knowledge of language structure, language conventions, media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.
- use writing as a medium for thought in both timed and untimed contexts.
- write responses to literature that extend beyond summary by organizing insightful interpretation around several clear ideas, premises or images
- support judgments with specific references to the original text, other texts, authors, and to prior knowledge and correctly cite and effectively incorporate that evidence into their arguments.

ENGLISH 10: American Literature (Full Year, 1 Credit)

Through a study of American literary history, students will explore the development of a national literature as it shapes and is shaped by the culture from which it arises. The class will include the rich variety of texts that have formed American literature since its origins in the texts of European contact up until the contemporary literary spheres. Readings will be drawn from a number of literary traditions and a variety of genres, including non-fiction, fiction, poetry, and drama. Building upon the critical analysis skills introduced in English 9, formal, informal, and timed writings will be assigned in response to literature and to writing prompts, as well as in the vocabulary units. Students will also develop effective skills in the research, organization, writing, and presentation of speeches.

Writing Objectives: At the tenth-grade level, students will write essays in a variety of forms including argument, comparison and contrast, and literary analysis. Along with new skills, those introduced in previous years will be reinforced and expanded on. Students will continue to develop as writers by participating in a process for writing including prewriting, organizing, composing, revising, editing, and when possible or appropriate, publishing. Students will edit writing for correct grammar, capitalization, punctuation, spelling, sentence structure, and paragraphing. While the general writing objectives for Regular and Advanced classes are similar, it is expected that Advanced students will demonstrate a greater degree of mastery and sophistication in skills and understanding, particularly in the realm of rhetoric. Areas of consideration include sophistication of syntax and diction, thorough development of ideas, appropriateness of support, precise relationship between claims and evidence, and effective organization to advance the particular argument.

Throughout the year, students will

- employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- apply knowledge of language structure, language conventions, media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.
- use writing as a medium for thought in both timed and untimed contexts.
- write responses to literature that extend beyond summary by organizing insightful interpretation around several clear ideas, premises or images
- support judgments with specific references to the original text, other texts, authors, and to prior knowledge and correctly cite and effectively incorporate that evidence into their arguments.

ADVANCED ENGLISH 10: American Literature (Full Year, 1 Credit)

Like English 10, Advanced English focuses on a study of American literary history. Students will explore the development of a national literature as it shapes and is shaped by the culture from which it arises. The class will include the rich variety of texts - some more challenging than in English 10 - that have formed American literature since its origins in the texts of European contact up until the contemporary literary spheres. Readings will be drawn from a number of literary traditions and a variety of genres, including non-fiction, fiction, poetry, and drama. The course emphasizes close reading skills as a foundation for analysis and seeks to deepen critical thinking skills in relation to the readings while encouraging an understanding of how those skills can be applied to the texts we encounter daily. Formal, informal, and timed writings will be assigned in response to literature and to writing prompts, as well as in the vocabulary units. Students will also develop effective skills in the research, organization, writing, and presentation of speeches.

Prerequisite: A final grade of A- or higher in English 9 and faculty recommendation

Writing Objectives: At the tenth-grade level, students will write essays in a variety of forms including argument, comparison and contrast, and literary analysis. Along with new skills, those introduced in previous years will be reinforced and expanded on. Students will continue to develop as writers by participating in a process for writing including prewriting, organizing, composing, revising, editing, and when possible or appropriate, publishing. Students will edit writing for correct grammar, capitalization, punctuation, spelling, sentence structure, and paragraphing. While the general writing objectives for Regular and Advanced classes are similar, it is expected that Advanced students will demonstrate a greater degree of mastery and sophistication in skills and understanding, particularly in the realm of rhetoric. Areas of consideration include sophistication of syntax and diction, thorough development of ideas, appropriateness of support, precise relationship between claims and evidence, and effective organization to advance the particular argument.

Throughout the year, students will

- employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- apply knowledge of language structure, language conventions, media techniques, figurative language, and genre to create, critique, and discuss print and non-print texts.
- use writing as a medium for thought in both timed and untimed contexts.
- write responses to literature that extend beyond summary by organizing insightful interpretation around several clear ideas, premises or images
- support judgments with specific references to the original text, other texts, authors, and to prior knowledge and correctly cite and effectively incorporate that evidence into their arguments.

English 11/12

In Grades 11 and 12, students have a choice of semester courses at the standard or honors level. These courses are generally either single-author or thematic in nature; ideally, each year both levels of courses offer a mix of canonical and less-traditional subjects. Honors classes prepare for the AP English Literature and AP English Language tests in alternate years—Literature in even-numbered years, Language in odd-numbered years. In all courses, students examine both the formal qualities of literary texts and how those texts are influenced by their context. They examine how ethics and morality guide characters and how these texts explore ethical questions. A major goal of these courses is to learn to read significant works of literature critically, with enjoyment, and with an appreciation of their form, content and context.

Another goal of the courses is to develop students' skills as writers. To that end, students write a number of informal, in-class writing assignments and Moodle forum entries, as well as longer expository and interpretive formal essays and creative pieces. These writing assignments require students to communicate the fruits of their interpretive labor, while developing skills that they will use for the rest of their academic and professional lives. Work in *Vocabulary from Classical Roots: Volume E* builds students' working vocabularies and help prepare students for standardized tests.

Honors course prerequisite: Final grade of at least A- in Standard English 10 or Standard English 11/12; or a final grade of B in an Advanced English 10 or Honors English 11/12; and faculty recommendation

*****ENGLISH 11/12 – Course offerings will be added soon. The following courses were offered during the 2020-2021 school year.**

S1 Offerings

S2 Offerings

*****HONORS ENGLISH 11/12 – Course offerings will be added soon. The following courses were offered during the 2020-2021 school year.**

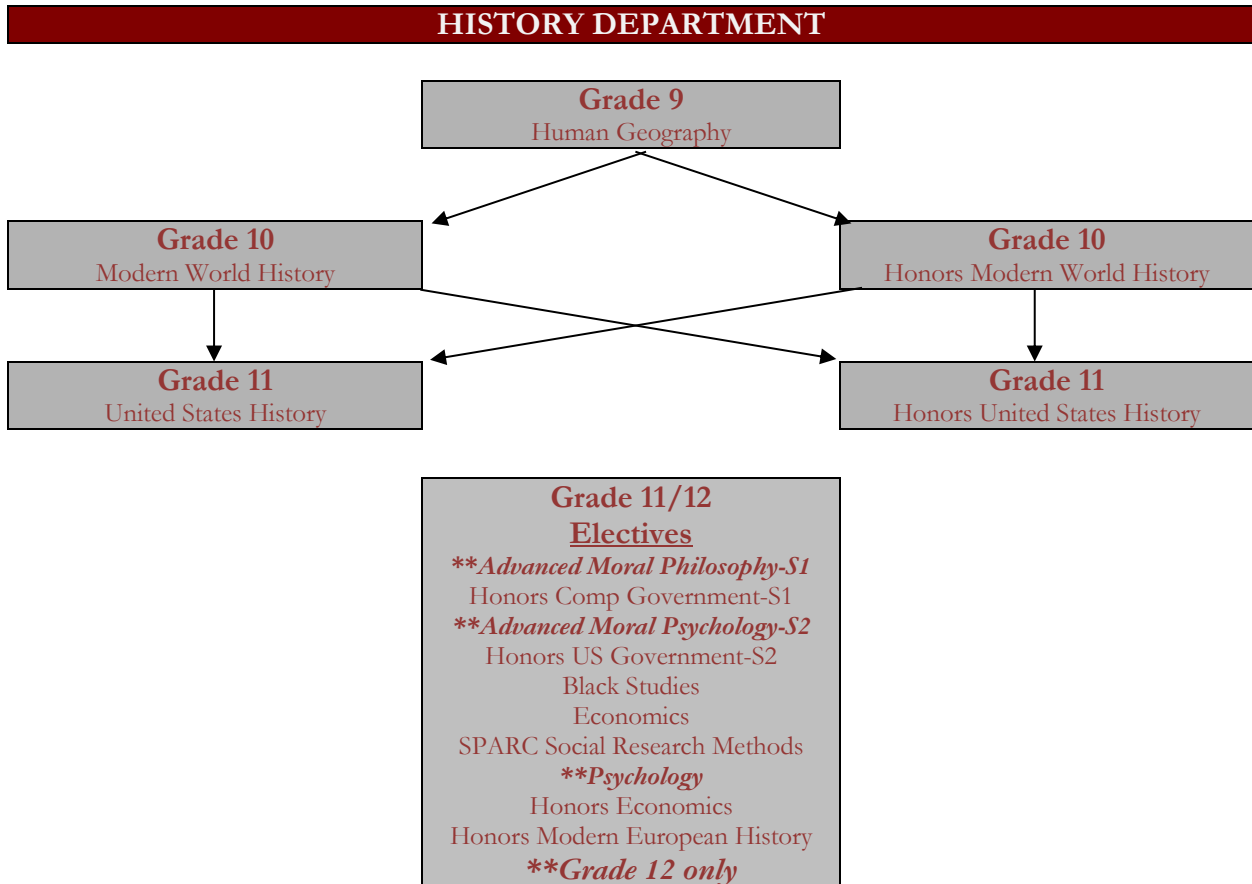
S1 Offerings

S2 Offerings

HISTORY DEPARTMENT

(3 Credits Required - 1 Each in Modern World History or Honors Modern World History,
United States History or Honors United States History)

The mission of the Upper School History and Social Science Department is to prepare students to be thoughtful and actively-engaged citizens in an increasingly complex and interconnected world. The department’s program is rooted in a foundation of world history, geography and global issues, complemented by an examination of United States history and an array of electives in both history and social sciences. All of the department’s offerings provide a balance between skill development and content knowledge, and emphasize an active consideration of the rights and responsibilities of citizenship, both national and global, as well as an appreciation for the complexity and diversity of the human experience. In their journey through the progression of History and Social Science courses, students will develop and hone the ability to analyze evidence from a variety of sources, to think analytically and contextually, to understand a multitude of perspectives and historical interpretations, and to communicate effectively, both verbally and in writing. In the process, they will gain a deeper understanding of humans’ interactions with each other and with the environment; of the historical forces that have shaped the modern world; and of the local, national, and global communities in which they live. The goal of the History and Social Science program is to support the Columbus Academy’s broader mission of developing “thoughtful, responsible, capable and confident citizens eager to engage in a pluralistic and ever-changing world.”



HUMAN GEOGRAPHY (Full Year, 1 Credit)

Human Geography provides students with a foundation for further Upper School studies through an exploration of cultural geography and contemporary global issues, along with opportunities to practice and develop skills in research, analysis, reading, and writing. The course will examine the forces that have shaped the modern world through the lenses of several social sciences including geography, history, economics, and sociology. After an introductory examination of both world geography and global issues, units will explore a variety of topics including: governance and human rights, culture and identity, world religions, human interaction with the environment, demographics, migration and urbanization, and globalization and world trade. This course will emphasize global themes, processes, and connections among cultures. Analysis and contextualization of current events and global issues are ongoing, integral elements of this course.

MODERN WORLD HISTORY (Full Year, 1 Credit)

This course will thematically examine the development of humans and complex societies, from the global convergence of the 15th century CE to the present day. The course will analyze the continuing development of increasingly sophisticated social, economic, and political systems. Interaction with the environment, the impact of technological innovation, and global interconnections are all recurring themes. It will also examine the roots of the major ideologies of the present, including democracy, socialism, capitalism, nationalism, imperialism, and globalism, in an attempt to understand and relate these forces to modern society. The analysis and contextualization of current events and global issues are ongoing, integral elements of this course.

HONORS MODERN WORLD HISTORY (Full Year, 1 Credit)

While the content is similar to Modern World History, this course is a more rigorous approach that combines a thematic examination of modern global history with preparation for the Advanced Placement World History: Modern Examination in May. After a brief survey of early world history, students will analyze the continuing development of increasingly sophisticated social, economic, and political systems from the 13th century CE to the present day. Interaction with the environment, the impact of technological innovation, and global interconnections are all recurring themes. The course will examine intellectual and cultural development from multiple perspectives, and will explore the roots of the major ideologies of the present, including democracy, capitalism, socialism, nationalism, imperialism, and globalism, in an attempt to understand and relate these forces to modern society. The analysis and contextualization of current events and global issues are ongoing, integral elements of this course.

Prerequisite: A final grade of A- in Human Geography and faculty recommendation

UNITED STATES HISTORY (Full Year, 1 Credit)

This course is taught within a chronological framework, with special emphasis on themes such as American identity, the growth of democracy, civil rights and liberties, economic development, the environment, the impact of technology, cultural diversity, the individual and society, the influence of religion, and the U.S. role in world affairs. The course requires students to explore and evaluate divergent viewpoints, and examine various historical perspectives, including the arts, literature, and cultural artifacts of the time. The development of critical thinking and writing skills is emphasized, and the successful completion of a capstone research paper is a course requirement.

HONORS UNITED STATES HISTORY (Full Year, 1 Credit)

The objectives of this rigorous course are to learn the history of the United States and to develop the skills to “think like a historian.” Critical and comparative thinking, self-awareness, and respect for opposing viewpoints are essential skills in understanding, maintaining, and supporting democracy. Students will develop a broad understanding of the United States’ social, political, economic, and cultural development; as well as its role in global history. Students will also build the skills of historical thinking and writing, including understanding historical causation, patterns of continuity and change over time, and periodization; using comparison and contextualization; crafting a cogent historical argument using relevant historical evidence; and interpreting sources. To achieve these objectives, students will rely on extensive use of both primary and secondary sources. This course will prepare students for the Advanced Placement Examination in United States History.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History and faculty recommendation

BLACK STUDIES (Full Year Elective, 1 Credit)

This course offers an introduction to lives and histories of people of African descent in the Diaspora with a specific focus on the African American experience. The course will examine, through an interdisciplinary approach, the many important historical, political and social issues concerning the African Diaspora. We will begin this journey in Pre-colonial Africa before moving through the trans-Atlantic slave trade and as far forward as the Black Lives Matter movement and its repercussions around the globe. While we are working through understanding the multiple histories of the African Diaspora we will examine certain themes that continually arise, including: the role of resistance and protest, heroes and villains throughout history, and the Black church and its impact on people of African descent. Much of the work we do in class will center around the reading of primary sources and historical texts, the viewing of documentaries and discussion. This course is one that encourages the use of critical thinking as the main source of knowledge acquisition.

ECONOMICS (Full Year Elective, 1 Credit)

Economics is designed to develop students’ economic reasoning through an analysis of the basic principles of economics, the economy of the United States and its interrelationship with global economics, and important concepts of personal finance and financial literacy. A brief survey of the history of economic theory and an introduction to the basic principles of macroeconomics and microeconomics will be presented in the first semester. The second semester will extend the understanding of these principles in the context of personal finance. The course will explore important concepts of financial literacy by covering the following topics: Saving and Investing, Personal Banking, Taxes, Credit Card and Credit Markets, and Budgeting and Consumer Skills. Skill development in analytical writing, in the application of basic mathematics to economic concepts, and in the analysis of primary documents will be important objectives of the course. Journal activities will provide introspective opportunities for students to apply concepts on a personal scale, as well as to analyze a variety of scenarios from a third-party perspective.

PSYCHOLOGY (Full Year Elective, 1 Credit)

Psychology is a survey course which involves the study of behavior and mental processes. Most of the course will be spent learning about normal human behaviors and the techniques that psychologists use to research these behaviors. Topics discussed include research methods, the biology of behavior, sensation and perception, stress and adjustment, learning, memory, cognition, motivation and emotion, life-span development of behavior, personality, and gender and sexuality.

SPARC SOCIAL RESEARCH METHODS (Full Year Elective, Credit TBD)

Academy has joined in partnership with The Center for the Study of Boys' and Girls' Lives, a consortium of independent schools based at the University of Pennsylvania Graduate School of Education. This partnership provides Columbus Academy students the opportunity to engage with UPenn graduate students and faculty in Youth Participatory Action Research (YPAR), a form of social research in which the researcher studies their own community for the purpose of improving it. Students enrolled in this course will choose, design, and lead research projects that aim to understand and support students' experiences at our school. In this course, students will learn how to craft a scientific research question, review scientific literature, design a project from start to finish, use quantitative and qualitative methods, analyze data, and write a final report. Students will also have the opportunity to present their research to the consortium at UPenn.

ADVANCED MORAL PHILOSOPHY (Semester 1 Elective, 1/2 Credit)

In this course students will study the classical modes of normative ethical reasoning. Much time and attention will be given to the three leading schools of thinking: utilitarian, deontological, and virtue-based ethics. The laws and language of these ways of reasoning are widely used in public debates and around contentious social issues and economic policy, and clear links will be established where relevant. In addition, students will learn how these philosophies undergird competing visions for organizing society and the role of government in the lives of citizens. Finally, students will explore how the concept of justice is understood by each school of thought, and how that understanding might logically take root in culture and the minds of its citizens.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or in Honors United States History, and faculty recommendation

ADVANCED MORAL PSYCHOLOGY (Semester 2 Elective, 1/2 Credit)

Evolutionary theory has opened new doors to exploring our moral ideas and instincts. Once the exclusive domain of theologians and philosophers, moral ideas have been increasingly the subject of psychologists. This course will introduce students to the complex but rapidly growing study of moral psychology. This approach to understanding our moral lives does not depend on the existence of a moral deity, nor does it require that people be impartial or perfectly rational. Students will learn how the pressures of natural selection may have favored traits such as cooperation and empathy, which over time, may have emerged as human virtues of honesty, fairness, and compassion. While powerful in explaining where such virtues may have originated, moral psychology is far less useful as a guide to future actions. Students will end their studies in this course by grappling with the implications of this shortcoming. Is this a cause for despair, an excuse to grab for power, the proof of the necessity of human reason, or the basis for a leap of faith?

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or in Honors United States History, and a faculty recommendation

HONORS COMPARATIVE GOVERNMENT (Semester 1 Elective, 1/2 Credit)

This one-semester honors course in Comparative Government and Politics introduces students to the fundamental concepts used by political scientists to study the processes and outcomes of politics in a variety of global settings. It aims to illustrate the rich diversity of political life, to show available institutional alternatives, to explain differences in processes and policy outcomes, and to communicate to students the importance of global political, social, and economic changes. In addition to covering the major concepts that are used to organize and interpret what we know about political phenomena

and relationships, students will apply these concepts through in-depth studies of specific countries and their governments (Great Britain, China, Russia, Iran, Nigeria, and Mexico). This course prepares students for the Advanced Placement Examination in Comparative Government.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or in Honors United States History, and faculty recommendation

HONORS US GOVERNMENT AND POLITICS (Semester 2 Elective, 1/2 Credit)

This course is designed to survey the United States federal government and political systems. Students will learn to interpret and analyze the Constitution, important political documents, and data to better understand the American national government and the political actors who interact with it. Course themes include constitutionalism, liberty and order, civic participation in a representative democracy, competing policy making interests, and methods of political analysis. Students will be prepared to take the Advanced Placement U.S. Government Examination in May.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or Honors United States History, and faculty recommendation

HONORS ECONOMICS (Full Year Elective, 1 Credit)

Honors Economics gives students a thorough understanding of the principles of economic systems. The course places particular emphasis on the study of national income and price determination, and develops the students' familiarity with economic performance measures, economic growth, and international economics. The course will prepare students for the Advanced Placement Examination in Macroeconomics. Textbook readings, primary source readings, simulations, group projects, and individual problem-solving activities are used to build understanding. In addition, short papers on current topics and a presentation on a selected topic are required.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or in Honors United States History, or faculty recommendation

HONORS MODERN EUROPEAN HISTORY (Full Year Elective, 1 Credit)

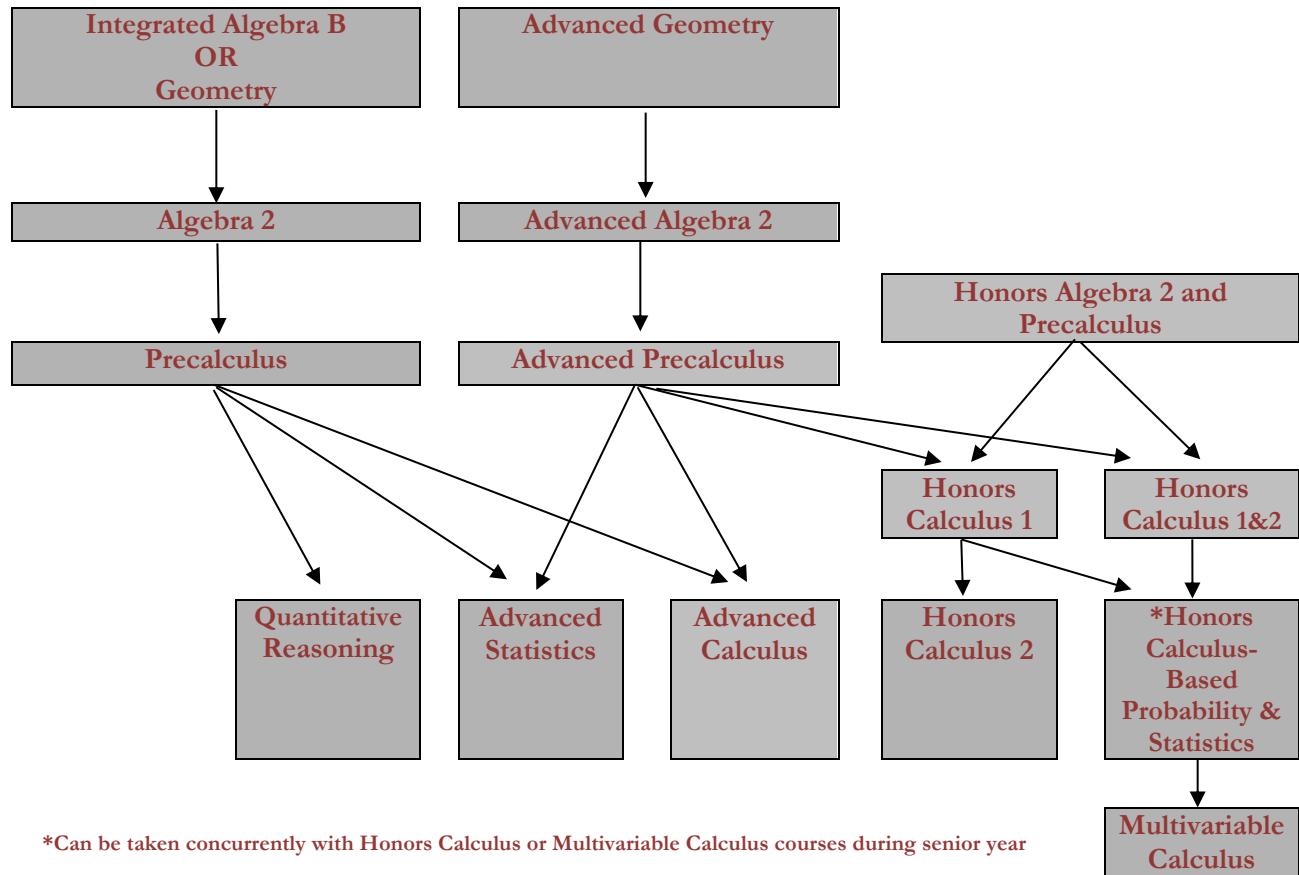
Honors Modern European History is a chronologically organized study of Western civilization from approximately 1300 CE to the present. It offers a comprehensive examination of the foundations of the Western world, including religious beliefs, intellectual movements, and political and economic ideologies such as liberalism, democracy, industrialism, capitalism, socialism, and imperialism. Students will examine the themes of political, social, and cultural change in European history through multiple perspectives, and will also consider issues of historiography through the analysis of primary and secondary sources. This course helps students prepare to take the Advanced Placement Examination in May.

Prerequisite: A final grade of A- in Modern World History or a B in Honors Modern World History, or a B- in United States History or in Honors United States History, and faculty recommendation

MATHEMATICS DEPARTMENT (4 Credits Required - Including Algebra 2)

In the Upper School mathematics program at Columbus Academy, students follow a traditional course sequence (Algebra 1, Geometry, Algebra 2, and Precalculus). Standard, advanced, and honors pathways provide different levels of challenge to meet the learning needs, interests, and mathematical abilities of each student. In addition to the core math curriculum, students can take standard-level elective courses in Data Analysis and Statistics, Calculus, Advanced Statistics, or Introduction to Computer Science. Honors-level electives include Calculus-Based Probability and Statistics, Multivariable Calculus, and multiple Computer Science courses. Connecting to the Math Vision of Columbus Academy, all students in the Upper School will develop Problem Solving skills, Reasoning skills, and a Growth Mindset. To foster Problem Solving and Reasoning, all students will engage in rich, non-routine problems involving logic, visualization, representations, and modeling. These challenges will help to develop a mindset in which mistakes are valuable parts of the learning process and individual growth is a critical component of assessment.

MATHEMATICS DEPARTMENT FLOW CHART



INTEGRATED ALGEBRA B (Full Year, 1 Credit)

Integrated Algebra B is the second year of our Integrated Algebra sequence. In this course, students will learn the content of Algebra 1 and Geometry in order to set them up for success in Algebra 2. Topics covered in Integrated Algebra B include the study of functions (quadratics, polynomials, and exponential) and analytic Geometry (distance formulas, the Pythagorean Theorem, the Midpoint formula, the equation of a circle, perimeter, area, volume, and triangle trigonometry).

Prerequisite: Pre-Algebra

GEOMETRY (Full Year, 1 Credit)

In standard-level Geometry, students will learn the concepts of Euclidean geometry and explore some elementary concepts of non-Euclidean geometry. Congruency and similarity will be studied within the context of triangles, quadrilaterals, and other polygons. New problem-solving skills are developed in solid geometry, right triangle trigonometry, and analytic and coordinate geometry. The curriculum is designed to incorporate deductive reasoning, algebraic manipulation, and technology, as students develop a greater understanding of proofs, logic, observation, measurement and description. Geometry provides the foundational concepts and thought processes required for Pre-Calculus, Calculus and standardized tests.

Prerequisite: Algebra 1

ADVANCED GEOMETRY (Full Year, 1 Credit)

In Advanced Geometry, students will explore the concepts of Euclidean geometry, congruency and similarity within the context of triangles, quadrilaterals, polygons, and 3-D figures, surface area and volume, basic trigonometry, coordinate geometry, and other advanced geometric topics. The curriculum is designed to incorporate deductive reasoning, algebraic manipulation, and technology, as students develop a greater understanding of proofs, logic, observation, measurement and description. Geometry provides the foundational concepts and thought processes required for Pre-Calculus, Calculus and standardized tests. Throughout this course, there is an emphasis on problem solving, proof, communication, and effective use of technology. This advanced course is designed for students who enjoy mathematics, seek a greater level of challenge, and accept the responsibility that accompanies an advanced mathematics course.

Required Materials: TI-Nspire CX calculator

Prerequisite: Algebra 1 AND permission of the department

ALGEBRA 2 (Full Year, 1 Credit)

In standard-level Algebra 2, students will review the concepts introduced in Algebra 1 and deepen their understanding of algebraic operations, simplifying expressions, solving equations, and graphing functions while exploring linear functions and systems, quadratic functions, radical functions, rational expressions and equations, exponential functions, logarithmic functions, conic sections, and basic statistics. Throughout this course, there is an emphasis on processes, communication of mathematics, and effective use of technology. Upon successful completion of this course, students have learned the core concepts required for the SAT exam and are prepared to take Precalculus.

Required Materials: TI-Nspire CX calculator

Prerequisite: Algebra 1 and Geometry

ADVANCED ALGEBRA 2 (Full Year, 1 Credit)

In Advanced Algebra 2, students also review the concepts introduced in Algebra 1 and deepen their understanding of algebraic operations, simplifying expressions, solving equations, and graphing functions while exploring linear functions and systems, quadratic functions, radical functions, rational expressions and equations, exponential functions, logarithmic functions, conic sections, and basic statistics. Upon successful completion of this course, students have learned the core concepts required for the SAT exam and are prepared to take Advanced Precalculus. Throughout this course, there is an emphasis on problem solving, communication of mathematics, and effective use of technology. This advanced course is designed for students who enjoy mathematics, seek a greater level of challenge, and accept the responsibility that accompanies an advanced mathematics course.

Required Materials: TI-NSpire CX calculator

Prerequisite: Advanced Geometry

HONORS ALGEBRA 2 & PRECALCULUS (Full Year, 1 Credit)

Honors Algebra 2 and Precalculus combines the topics of two math courses in one school year. Students will deepen their understanding of algebraic operations, simplifying expressions, solving equations, and graphing functions while exploring linear functions and systems, quadratic functions, radical functions, exponential functions, logarithmic functions, and conic sections. In the Precalculus section of the course, students will study polynomial functions, rational functions, right triangle and unit circle trigonometry, trigonometric functions and their graphs, inverse trigonometric functions, trigonometric identities, trigonometric applications, sequences and series, probability, limits, derivatives, linear motion, and antiderivatives. Honors Algebra 2 and Precalculus is designed for students with a very strong aptitude in mathematics and a willingness to accept the responsibility that accompanies a rigorous mathematics course at an accelerated pace. This course prepares students for the SAT Math Level 2 Subject Test and Honors Calculus 1 & 2.

Required Materials: TI-NSpire CX calculator

Prerequisite: Advanced Geometry AND permission of the department

PRECALCULUS (Full Year, 1 Credit)

In Precalculus, students will build upon the concepts learned in Algebra 2 and use mathematical modeling as foundation to develop a deeper understanding of polynomial functions, rational functions, exponential functions, logarithmic functions, logistic functions, logistic functions, vectors, and matrices. After reviewing the concepts of trigonometry introduced in Geometry, students will learn about trigonometric functions and their graphs, inverse trigonometric functions, trigonometric identities, and their applications. Throughout this course, there is an emphasis on problem solving, real-world applications, and effective use of technology. Upon successful completion of this course, students are prepared to take Calculus.

Required Materials: TI-NSpire CX calculator

Prerequisite: Algebra 2

ADVANCED PRECALCULUS (Full Year, 1 Credit)

In Advanced Precalculus, students will build upon the concepts learned in Advanced Algebra 2 to develop a deeper understanding of various types of functions. Topics studied include polynomial functions, rational functions, exponential functions, logarithmic functions, matrices, unit circle trigonometry, trigonometric functions, inverse trigonometric functions, trigonometric identities, and equations, laws of sines and cosines, polar coordinates, parametric functions, vectors, sequences and series, binomial theorem, induction, combinatorics and probability, and an introduction to Calculus. Advanced Precalculus is designed for students who have a very strong command of Algebra 2

concepts, plan to take AP Calculus in the future, and accept the responsibility that accompanies a rigorous mathematics course. This course prepares students for the SAT Math Level 2 Subject Test and Honors Calculus.

Required Materials: TI-NSpire CX calculator

Prerequisite: Advanced Algebra 2 AND permission of the department

QUANTITATIVE REASONING (Full Year, 1 Credit)

Quantitative Reasoning is the application of mathematics to the analysis and interpretation of quantitative information (numbers and units) in real-world contexts in order to make decisions relevant to daily life. This course is designed to promote reasoning, problem-solving, modeling, and communication through thematic units focused on mathematical practices, while reinforcing and extending content in Number and Quantity, Algebra, Functions, Statistics and Probability, Geometry, and Trigonometry.

Required Materials: TI-NSpire CX calculator

Prerequisite: Precalculus or Algebra 2 with permission from the department

ADVANCED CALCULUS (Full Year, 1 Credit)

This course covers the content of a first semester college Calculus course. Students who have completed Precalculus or Advanced Precalculus will learn about limits, differentiation, antidifferentiation, definite and indefinite integrals, and applications of Calculus using exponential and logarithmic functions. This course is NOT designed to prepare students for the Advanced Placement Calculus exam.

Required Materials: TI-NSpire CX calculator

Prerequisite: Precalculus or Advanced Precalculus and permission of the department

HONORS CALCULUS 1 (Full Year, 1 Credit)

This is an honors course, providing mastery of Calculus topics commensurate with a first semester college Calculus course. In preparation for the AP Calculus AB exam, students will learn about the limits and continuity of functions, derivatives and their applications, integrals and their applications, advanced integration techniques, differential equations, and volumes of solids of revolution. Students will be expected to take the AP Calculus AB exam. This honors-level course is designed for students who enjoy mathematics, have a strong command of Precalculus concepts, seek a greater level of challenge and accept the responsibility that accompanies a rigorous mathematics course. Throughout this course, there is an emphasis on problem solving, real-world applications, and effective use of technology.

Required Materials: TI-NSpire CX calculator

Prerequisite: Advanced Precalculus or Honors Algebra 2 and Precalculus

HONORS CALCULUS 1 AND 2 (Full Year, 1 Credit)

This is an honors course, providing mastery of Calculus topics commensurate with the first and second semester of a college Calculus course. In preparation for the AP Calculus BC exam, students will learn about limits and continuity of functions, derivatives and their applications, integrals and their applications, advanced integration techniques, differential equations, volumes of solids of revolution, infinite sequences and series, Taylor Polynomial approximations and Taylor series, and parametric, polar, and vector functions. Students will be expected to take the AP Calculus BC exam. This honors-level course is designed for students who enjoy mathematics, have a very strong command of Precalculus concepts, seek a greater level of challenge and accept the responsibility that accompanies

a rigorous mathematics course. Throughout this course, there is an emphasis on problem solving, real-world applications, and effective use of technology.

Required Materials: TI-NSpire CX calculator

Prerequisite: Advanced Precalculus or Honors Algebra 2 & Precalculus

HONORS CALCULUS 2 (Full Year, 1 Credit)

This is an honors course, providing mastery of Calculus topics commensurate with the second semester of a college Calculus course. In preparation for the AP Calculus BC exam, students will review the concepts taught in HCALC1 and learn about advanced integration techniques, infinite sequences and series, Taylor Polynomial approximations and Taylor series, and parametric, polar, and vector functions. Students will be expected to take the AP Calculus BC exam. This honors-level course is designed for students who enjoy mathematics, have a strong command of HCALC1 concepts, seek a greater level of challenge and accept the responsibility that accompanies a rigorous mathematics course. Throughout this course, there is an emphasis on problem solving, real-world applications, and effective use of technology.

Required Materials: TI-NSpire CX calculator

Prerequisite: Honors Calculus 1

ADVANCED STATISTICS (Full Year Elective, 1 Credit)

This non-calculus-based statistics course introduces students to the major concepts and tools used to collect, analyze, and draw conclusions from real-world data. Students will explore themes in exploring data, sampling and experimentation, probability and simulation, and statistical inference, with the option to take the Advanced Placement exam. Students will use technology, investigations, problem solving, and writing as they build conceptual understanding. Students who are on track to take Honors Calculus 1 should NOT take this course. Instead, they should take the Honors Calculus-Based Probability and Statistics (HCPSTATS) course.

Required Materials: TI-NSpire CX calculator

Prerequisite: Precalculus or Advanced Precalculus AND permission of the department OR Algebra 2 and permission by the department to take as a senior.

HONORS CALCULUS-BASED PROBABILITY AND STATISTICS

(Full Year Elective, 1 Credit)

This rigorous course develops the mathematical underpinnings of probability and mathematical statistics. The focus of the first semester is probability. Topics studies will include axiomatic probability, discrete and continuous univariate and bivariate distribution functions and their properties, special and commonly used distributions, and large-sample approximation. In the second semester students develop and apply inferential statistical methods, including interval estimation and hypotheses testing for one and two means or proportions, tests for independence in categorical data, analysis of variance with multiple comparisons, and simple and multiple regression models. Students will learn to formulate research questions, design appropriate surveys or experiments, and analyze resulting data. Substantial focus is on providing a rigorous development of principles that link these inferential methods. At the end of this extensive course, all students are required to take the Advanced Placement Statistics exam.

Required Materials: TI-NSpire CX calculator

Prerequisite: Honors Calculus 1 or Honors Calculus 1 & 2 or concurrently enrolled in Honors Calculus 1, Honors Calculus 1 & 2 or Honors Calculus 2 AND permission of the department

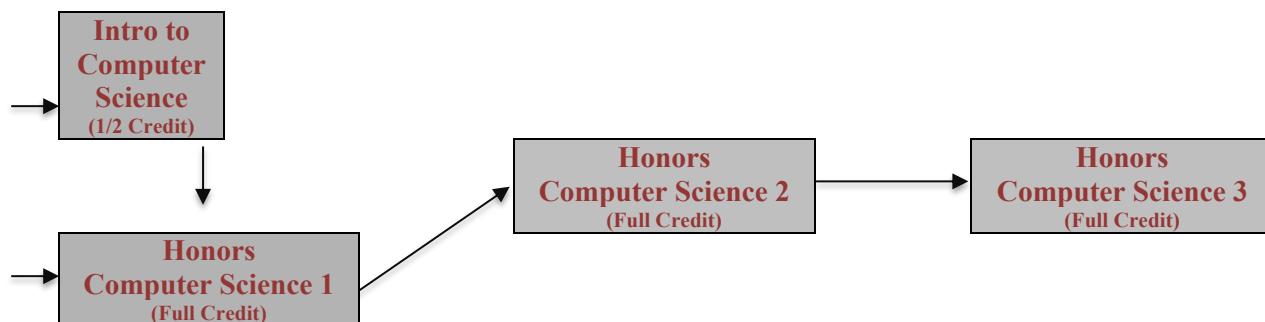
MULTIVARIABLE CALCULUS (Full Year Elective, 1 Credit)

Multivariable Calculus generalizes the major ideas from Calculus (rates of change, differentiation, optimization, integration, etc.) to functions of more than one variable, providing a study of paths and surfaces in space. These generalizations are applied to study mathematical objects in three or more dimensions. This course introduces vector analysis, partial derivatives, multiple integrals, and some matrix algebra. Additional course objectives include a better understanding of series and introductory topics in linear algebra. Mathematical software is used to enhance visualization and understanding of course concepts.

Required Materials: TI-Spire CX calculator

Prerequisite: Honors Calculus-Based Probability and Statistics or concurrently enrolled in Honors Calculus-Based Probability and Statistics as a senior AND permission of the department

COMPUTER SCIENCE FLOW CHART



INTRODUCTION TO COMPUTER SCIENCE (Full Year, 1/2 Credit)

This course provides a gentle introduction to computer science by teaching core programming constructs (conditionals, loops, variables, and functions). Through a gentle pace, students complete projects written in block-based coding, HTML/CSS, and JavaScript. This course is recommended for students who are interested in computer science and in developing their own programs. No prior experience is necessary. This class is available to students in grades 9-12. This course does not prepare students for the Advanced Placement Computer Science exam.

HONORS COMPUTER SCIENCE 1 (Full Year, 1 Credit)

Honors Computer Science 1 is an aggressive introduction to computer science using the programming language of JAVA. This class is modeled on a collegiate-level programming course that embraces the object-orientated paradigm. In addition to core programming construct (conditionals, loops, variables, and methods), students also study more advanced topics of data structures, classes, sorting/searching algorithms and recursion. By the end of the year, students will be able to independently develop substantial programs. No prior experience is necessary. This class is available to students in grades 9-12. This course prepares students for the Advanced Placement Computer Science A exam, although it is not required. Students wishing to take the Advanced Placement exam are encouraged to take Honors Computer Science 2.

Prerequisite: Must be concurrently enrolled in an advanced or honors level mathematics course **OR** permission by the department

HONORS COMPUTER SCIENCE 2 (Full Year, 1 Credit)

This course is modeled after a collegiate level data structures course. The data structures covered are linked lists, stacks, queues, binary search trees, hash tables, sets, and maps. In addition, more complex searching and sorting algorithms and recursive techniques are covered.

Prerequisite: Honors Computer Science 1

HONORS COMPUTER SCIENCE 3 (Full Year, 1 Credit)

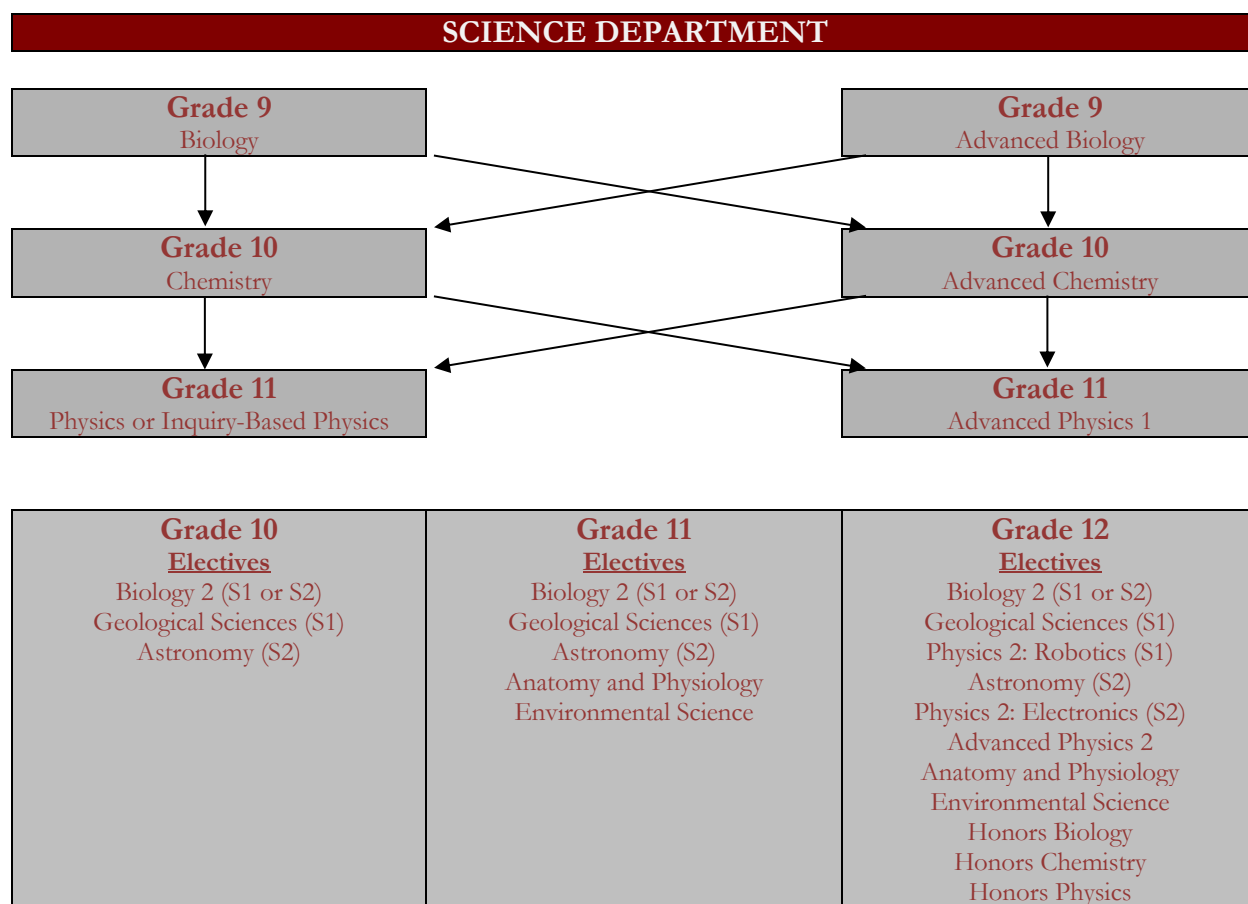
This honors-level course will introduce students to a variety of topics selected from a typical undergraduate computer science curriculum. The goal of the course is to develop a deeper understanding of computer science as more than just programming. Topics addressed include: how information is measured, how computers work, how programming languages are developed, what the limits of computation are, how the internet works, and how computers can behave intelligently. Students complete projects that relate to these topics.

Prerequisite: Honors Computer Science

SCIENCE DEPARTMENT

(3 Credits Required - Including Biology, Chemistry and Physics)

The goal of the science program in the Upper School is to promote and enhance scientific knowledge and problem-solving skills. Students take core courses in biology, chemistry, and physics, with a selection of three Advanced Placement courses offered as second-year options. In addition, we offer several elective courses in the fields of anatomy and physiology, astronomy, environmental science, and robotics. Each course provides students with an opportunity to heighten their scientific literacy by imparting a clear understanding of the scientific method through skills of observation, experimentation, data interpretation and analysis, critical thinking, and communication. Students learn to work cooperatively in teams, use technology effectively, and value life-long learning, while increasing their awareness of societal issues and career opportunities.



BIOLOGY (Full Year, 1 Credit)

Science, ecology, evolution, cell biology, and biochemistry are presented in the first semester, while systematic diversity of life, genetics, molecular biology and an overview of DNA, genetics, and human biology are studied second semester. This course emphasizes real world applications of these concepts. Laboratory and classroom activities stress a hands-on approach to science. There is ample room in the Biology curriculum to spend extra time on a given topic or to explore special topics in order to meet the needs and desires of each group of students.

Prerequisite: Algebra 1 concurrent

ADVANCED BIOLOGY (Full Year, 1 Credit)

Science, ecology, evolution, animal behavior, and biochemistry are presented in the first semester, while cell biology, molecular biology, an overview of DNA and the cell cycle, genetics, the systematic diversity of life, and human biology are studied second semester. A large part of class time is spent on laboratory activities for which students will be expected to complete lab reports using standard scientific format. There is time in the year to explore inquiry-based learning. In addition, students will be expected to think on both a concrete as well as a conceptual level. Advanced Biology is designed to prepare students for the end-of-year SAT Subject Test in Biology.

Prerequisite: Recommendation from 8th grade science teacher and Algebra 1

CHEMISTRY (Full Year, 1 Credit)

Chemistry is designed to help students gain understanding into the composition and properties of matter as well as how matter reacts. In addition to studying the structure of the atom, topics include chemical bonding, stoichiometry, periodicity, study of the physical states, solutions and acid-base chemistry. Practical application of chemistry is stressed through problem solving, and laboratory investigation is an integral part of the course.

Prerequisite: Algebra 1

ADVANCED CHEMISTRY (Full Year, 1 Credit)

Advanced Chemistry is a traditional chemistry course that emphasizes depth of understanding and challenging problem solving. Topics include the structure of the atom, chemical bonding, stoichiometry, periodicity, physical states, solutions, acid-base chemistry, kinetics, and equilibrium chemistry. Practical application of chemistry is stressed through problem solving, and laboratory investigation is an integral part of the course. Problem sets and laboratory investigations are presented at a challenging level. Upon completion of the course students should be prepared to take the SAT Subject Test in Chemistry.

Prerequisite: Advanced Algebra 2 concurrent and recommendation of biology teacher

PHYSICS (Full Year, 1 Credit)

Students enrolled in this course will spend a full year exploring classical physics topics such as mechanics, electromagnetism, and wave phenomena. Considerable emphasis is placed on conceptual understanding of these topics, but students are also expected to become proficient in quantitative problem solving. Laboratory work is especially designed to deepen understanding and provide a true hands-on experience of the phenomena under discussion. Advances in technology that strengthen the course are continually being integrated into the program, both in the traditional classroom setting and in the laboratory. Physics is a fast-paced, rigorous course that covers a wide range of topics.

Prerequisite: Algebra 2

PHYSICS: INQUIRY-BASED (Full Year, 1 Credit)

Inquiry-Based Physics is a course that uses a different approach to cover the same content as that of standard Physics. Physics concepts are introduced and built around physical objects. Students will construct their understanding through discussions, group research and teacher facilitation. Group tests and writing assessments will be used along with traditional tests. During the second semester, this class will emphasize individual and group research that includes a substantial writing piece. Students interested in this class must be self-motivated and adept at group work and collaboration.

Prerequisite: Algebra 2

ADVANCED PHYSICS 1 (Full Year, 1 Credit)

Advanced Physics is a course designed to offer a greater challenge than standard-level Physics for students who are strong in science and mathematics. This course explores the relationship between matter and energy and how they interact, with a strong emphasis on algebra-based mathematics of Physics. Topics include motion, forces, energy, waves, sound, light, and electromagnetism. Practical application of Physics is stressed through problem solving. Laboratory investigation is an integral part of this advanced course. Completion of Advanced Physics will prepare students, if they choose, to take the SAT Subject Test in Physics.

Prerequisite: Advanced Algebra 2 AND recommendation of chemistry teacher

ADVANCED PHYSICS 2 (Full Year, 1 Credit)

This second-year physics course continues the study of matter, energy, and their interactions. This course is designed for students who are strong in science and mathematics, with an emphasis on the algebra-based mathematics of physics and practical application of physics through problem-solving. Laboratory investigation is an integral part of this advanced course. Topics include fluids, thermodynamics, electric field and potential, electric circuits, magnetism and electromagnetic induction, geometric and physical optics, and an introduction to modern physics. Completion of Advanced Physics 2 will prepare students, if they choose, to take the Advanced Placement Physics 2 exam.

Prerequisites: Advanced Algebra 2, either Chemistry or Advanced Chemistry, and either Physics or Advanced Physics.

ANATOMY AND PHYSIOLOGY (Full Year Elective, 1 Credit)

Anatomy and Physiology is the study of the structure and function of the human body. This course is designed to provide an opportunity to investigate the various organ systems that comprise the human body, their structures, functions and commonly associated pathologies. Through direct instruction, dissections, case studies and project-based learning, students will develop skills such as problem solving, critical thinking and be able to participate in classroom discussion regarding our course of study and various common pathologies associated with the human body.

Prerequisite: Biology and Chemistry

ASTRONOMY (Semester 2 Elective, 1/2 Credit)

The goal of Astronomy is to recognize what is in the sky, and to recognize the role science plays in exploring the universe. The course explores the scale and scope of the universe by identifying objects in the sky, understanding how they move through the sky, and how they help us to understand the universe. Students learn how astronomy has evolved through history and about the significant discoveries made in astronomy. Students learn about the solar system by studying about our Sun, the Earth and Moon, and other objects in the system. Students cover stars, how they form, and their life

cycles. This class uses lecture-tutorials, and planetarium software to immerse themselves in the study of astronomy and to create an active learning environment.

Prerequisite: Biology

BIOLOGY 2 (Semester Elective, 1/2 Credit)

The Biology 2 course is an elective course for seniors. The topics of this course revolve around the characteristics of life: cells and DNA, reproduction, development, response to stimuli, and evolution and systematics of organisms. The subject matter of Biology 2 encompasses many of the topics covered in a first-year biology course in greater depth, and the focus is slightly different. This course is an excellent springboard for learning about how to do science and will allow for some independent project work. This course is NOT intended to prepare students for the Biology Advanced Placement exam in May.

Prerequisite: Biology

ENVIRONMENTAL SCIENCE (Full Year Elective, 1 Credit)

Environmental Science is a hands-on interdisciplinary course for juniors and seniors. Principles of biology, chemistry, and physics are employed to understand natural earth systems and environmental issues. Geology, oceanography, climatology, and basic astronomy apply to the physical sciences, while ecology and species diversity relate biology to “Health of the Planet” issues. Some topics are also discussed from a social perspective, including environmental regulation, resource allocation, agricultural methods and population. This class includes a substantial amount of time out of the classroom doing actual field investigations. While Environmental Science is not specifically designed to prepare students for the Advanced Placement Examination, curriculum will cover most of the Advanced Placement topics. Students may elect to take the Advanced Placement Examination.

Prerequisite: Biology and Chemistry

GEOLOGICAL SCIENCES (Semester 1 Elective, 1/2 credit)

Physical geology is a course designed to give students an understanding of the complexity of forces that have shaped the world around them. This course will introduce students to topics in geology such as formation of rocks, mineralogy, plate tectonics, volcanism, earthquakes, geologic history, and glacial geology through both classroom and field-based study. The course will investigate geologic phenomena from around the globes, with a special focus on the geology of Ohio, in which students will have the opportunity to attend various field trips to supplement their understanding.

Prerequisite: Biology

PHYSICS 2: Robotics (Semester 1 Elective, 1/2 Credit)

Robotics is a physics application course designed to give students hands-on experience with fundamental principles of physics. Students follow a robotics curriculum that includes engineering design, basic robot design, computer-aided drawing (CAD) design, robot programming, and robot building. Application of forces, torques, conservation of momentum, and conservation of energy are used extensively throughout the program. The students also engage in a group project where they build a robot that competes in a FIRST Technology Challenge type of competition. The class incorporates cooperative learning: Students have the opportunity to take on different roles within a group as they build a competition robot. Student learning is assessed through individual projects, group projects, and performance assessments. Students’ semester exam grade is based on the performance of their group robot in a competition.

Prerequisite: Physics

PHYSICS 2: Electronics (Semester 2 Elective, 1/2 Credit)

This course introduces students to the Arduino board that allows them to design and produce a wide variety of projects. Students begin the semester using basic electronic principles to design a variety of circuits. These circuits are controlled by an Arduino board that is connected to a variety of actuators. The system demonstrates how Ohm's Law and other physics principles are applied when making electric circuits. Students incorporate sensors into their design to control the actuators through the Arduino board. Linear motion, rotational motion, momentum, energy, electricity, and magnetism are concepts necessary to understand the sensors and actuators used in classroom projects. The class is designed to be a hands-on, project-oriented class with assessments based on projects designed, built, and tested by the students. Students also learn how to program in the Arduino IDE. No prior programming experience is necessary. At the end of the course, students produce a major project based on a theme introduced at the beginning of the semester.

Prerequisite: Physics

HONORS BIOLOGY (Full Year Elective, 1 Credit)

This course is designed as an Advanced Placement course in general biology. Students study ecology, evolution, systematics, chemistry, and biochemistry in the first semester. They study cell biology, cell respiration, photosynthesis, DNA and molecular biology, genetics, microbiology, and animal diversity and physiology in the second semester. Students are expected to perform many laboratory experiments that stress hypothesis testing and may be inquiry based. They will write up these experiments using proper scientific format. Mathematical and statistical approaches to biology are also emphasized where applicable. Honors Biology students are required to take the Advanced Placement Exam in Biology in May.

Prerequisite: Biology and Chemistry

HONORS CHEMISTRY (Full Year Elective, 1 Credit)

This course is designed to be the equivalent of the general chemistry course taken during the first year of college. Students in this course will build on the foundation provided during their first year of high school chemistry. The primary objective is for each student to maximize his/her understanding of fundamentals and develop competence in dealing with chemical problems. This course will help students to think clearly and to express their ideas with logic and clarity. Students are required to take the Advanced Placement Examination.

Prerequisite: Biology and Chemistry

HONORS PHYSICS (Full Year Elective, 1 Credit)

Honors Physics is a second-year Physics course for seniors, although selected students may choose to take Honors Physics as a first-year Physics course as a junior. This course explores the relationship between matter and energy and how they interact. Honors Physics covers advanced topics including mechanics, electricity, and magnetism. This course places a strong emphasis on problem-solving, utilizing algebra, differential calculus, and integral calculus. Honors Physics includes a laboratory component, whereby students will conduct inquiry-based labs to strengthen their critical thinking skills and understanding of the topics. Upon completion of Honors Physics, students will be required to take both the Advanced Placement Physics C: Mechanics and Advanced Placement Physics C: Electricity & Magnetism exams. Students who take only the first semester of this class will be required to take the Advanced Placement Physics C Mechanics exam.

Required Material: TI-NSpire calculator

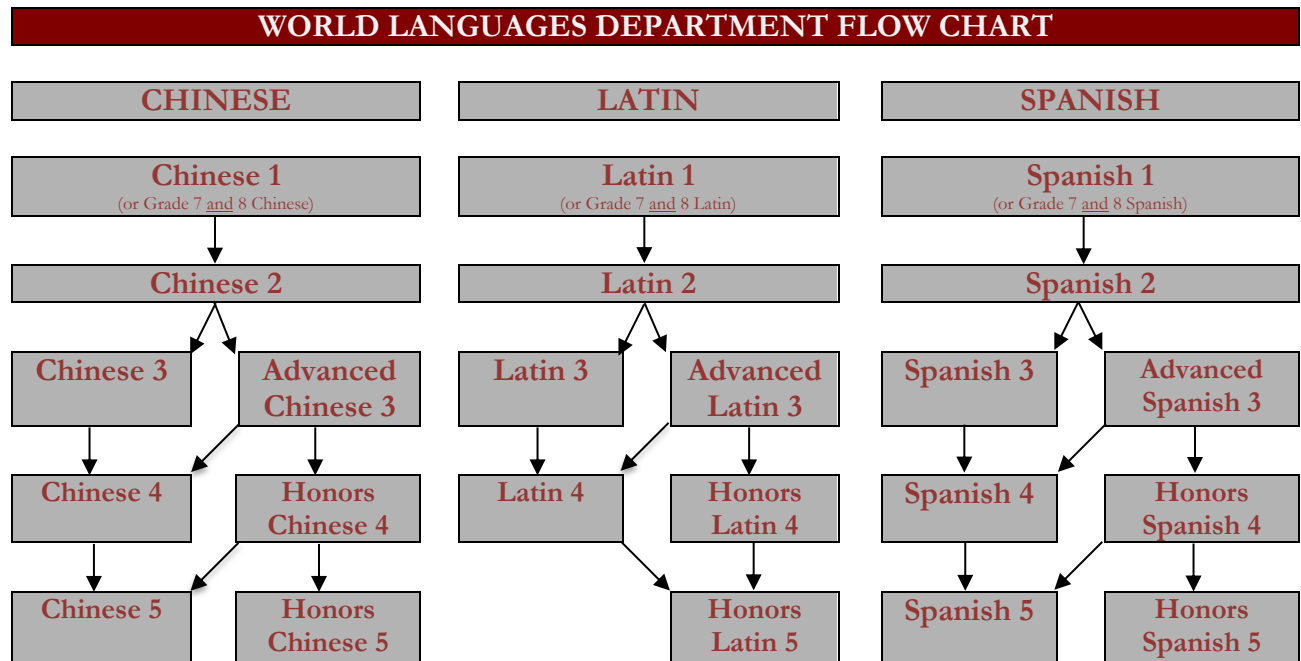
Prerequisite: Honors Calculus/Honors Calculus 1 and 2 and Physics AND permission of the department

WORLD LANGUAGES DEPARTMENT
 (3 Credits Required - Single World Language)
 or
 (2 Credits Required - Two World Languages)

The Columbus Academy’s World Languages Department offers language and culture instruction in order to enhance the students’ educational experience. The department fosters the ability to communicate successfully in another language and to engage with different cultures. Through the study of language and cultures, students develop open-mindedness, a sense of community, an appreciation of differences, and the ability to embrace multiple perspectives.

In order to graduate, students in Upper School must complete through level three of Chinese, Latin or Spanish, respectively. Students can also elect to complete through level two of one language and then through level two of another in order to satisfy the graduation requirement. Beyond the requisite coursework, students usually take a language though their senior year.

Upper School world language classes emphasize three modes of communication: interpretive, interpersonal and presentational. Students read, listen, speak and write about authentic texts, history, customs, and current events.



CHINESE 1 (Full Year, 1 Credit)

Chinese 1 is a yearlong course in Beginning Chinese. The course is designed for students who have had no prior exposure to Chinese language. It offers introduction to the pinyin system, fundamental grammatical structures, basic vocabulary and character forms of modern standard Chinese (Mandarin). Emphasis will be placed on all four skills (listening, speaking, reading and writing). While linguistic aspects of Chinese language are the primary focus, introduction to the social and cultural background of the language will also form an important part of study, which embedded with five C's of foreign language learning: communication, cultures, connections, comparisons, communities. *Students will be expected to earn at least a C and have a faculty recommendation in order to advance to Chinese 2.

CHINESE 2 (Full Year, 1 Credit)

Chinese 2 is designed for students who have had exposure to Chinese language that includes the sound system, essential grammatical structures, basic vocabulary and character forms of modern standard Chinese (Mandarin). The emphasis in this class is on continuing building up vocabulary and sentence patterns in communicative contexts, and building a solid foundation in pronunciation. Students will expand their ability to carry out simple conversations in Chinese on a limited range of topics. Reading and writing (using simplified characters) will be developed in conjunction with speaking and listening skills. Students will be expected to speak, read, and write all new words that appear in vocabulary lists in the main textbook to continue to Chinese 3 unless otherwise noted by the instructor.

Prerequisite: A final grade of C or higher in Chinese 1 and faculty recommendation

CHINESE 3 (Full Year, 1 Credit)

Chinese 3 is designed to develop and refine proficiency in all four language skills – reading, writing, listening, and speaking. Conducted mainly in Chinese, this course includes grammar review, vocabulary development, and engages students in communicative exercises. Learning materials include a selection of contemporary articles as well as literary, cultural, and multimedia texts. Reports and oral presentations strengthen student understanding of the target language. This course completes the foreign language graduation requirement.

Prerequisite: A final grade or final exam grade of at least a C in Chinese 2 and faculty recommendation

ADVANCED CHINESE 3 (Full Year, 1 Credit)

Advanced Chinese 3 is the third-year study of Mandarin Chinese. This course is designed to develop and refine proficiency in all four language skills. Conducted entirely in Chinese, Advanced Chinese 3 includes grammar review, vocabulary development and engages students in communicative exercises. Reading materials include a selection of contemporary articles and literature, as well as cultural authentic texts, such as short stories, newspaper articles, and Chinese idioms. Reports and oral presentations strengthen understanding of the target language. This course not only completes the World Language graduation requirement, but is also designed to prepare students for standardized national foreign language testing.

Prerequisite: A final grade of B+ /A- in Chinese 2 and/or faculty recommendation

CHINESE 4 (Full Year, 1 Credit)

This course is designed for students who have completed the foreign language requirement and wish to build on their Chinese language proficiency and cultural understanding. The students will expand their vocabulary and grammatical structures while integrating five skills: listening, speaking, reading, writing and character recognition through typing. Taught in Chinese, the content includes current

issues, idioms, literature, and cultural topics in the target language. The materials include films, songs, online materials and news.

Prerequisite: A final grade of C+ or higher in Chinese 3 and/or faculty recommendation

HONORS CHINESE 4 (Full Year, 1 Credit)

Honors Chinese 4 is a Pre-Advanced Placement course that is in alignment with the Advanced Placement format. The course is designed for students who are interested in pursuing higher language proficiency in listening, speaking, reading, writing and character typing skill. Taught completely in Chinese, the students will honor the language pledge. The course focuses on the language through the lens of Chinese culture. Honors Chinese 4 emphasizes the development of cohesive speaking and writing skills through the building of rich vocabularies and complex sentence structures. Course materials include idioms, tang and song poems, current issues, cultural topics, films, and pop culture in the target language. Communicating with exchange students in China through email is included as one of the learning objectives.

Prerequisite: A final grade of A- or higher in Chinese 3 and/or faculty recommendation and approval of the department chair

CHINESE 5 (Full Year, 1 Credit)

Chinese 5 is designed as a natural sequence to Honors Chinese 4. The course consists of extensive communicative drills, the study of complex sentence patterns and grammar, and reading and writing. The class is conducted in Chinese and uses natural tones and speed for listening comprehension. The textbook is of an intermediate level, and the students are able to maintain their language skills and make transition to a mid-second year college course. The students are introduced to formal written language and they keep up with Chinese current issues with authentic materials. By the end of fifth year Chinese, most of Chinese language students will have the language immersion experiences from our exchange program.

Prerequisite: A final grade of C+ or higher in Chinese 4 and/or faculty recommendation

HONORS CHINESE 5 (Full Year, 1 Credit)

Honors Chinese 5, an Advanced Placement course, consists of intense speaking drills, the study of complex sentence patterns and grammar, advanced reading, and advanced writing. Conducted in Chinese, the course uses a college textbook, authentic materials, and is on an upper intermediate level. Activities include debating, giving campaign speeches, presenting career choices, and covering cultural topics in depth. Students are introduced to formal written language and classics reading, and they keep abreast or current Chinese issues. Upon completion, students will comfortably transition to a late-second or third year college course. By the end of Chinese 5, almost all Chinese language students will have taken a trip to China and will have benefitted greatly from participating in the exchange program. This course also prepares students to take the Chinese Advanced Placement Examination.

Prerequisite: A final grade of A- or higher in Honors Chinese 4 and/or faculty recommendation

LATIN 1 (Full Year, 1 Credit)

Latin 1 stresses reading and translation, the mastery and pronunciation of Latin vocabulary, basic grammatical structures, the building of a stronger English vocabulary and grammar through study of the relationship of the two languages, and an introduction to ancient mythology and Roman history. It acquaints students with study and organizational skills, and with the precision and daily discipline that will facilitate the learning of other languages. *Students will be expected to earn at least a C in order to advance to Latin 2.

LATIN 2 (Full Year, 1 Credit)

Latin 2 is a continuation of Latin I with the general philosophy remaining unchanged: reading Latin with confidence, providing insight into Roman culture, and improving English skills through the study of Latin. Greater attention is paid to sustained reading with emphasis on more sophisticated grammatical and syntactical structures. In addition, the content of the stories and the cultural material are used as a basis for oral discussion stressing the comparisons and contrasts between the elements of ancient Roman society and today's society.

Prerequisite: A final grade of C or higher in Latin 1 and/or faculty recommendation

LATIN 3 (Full Year, 1 Credit)

Latin 3 is an introduction to Latin prose with an emphasis on the variety of Roman prose styles. After a review of intermediate grammar, students are introduced to the most complicated aspects of Latin grammar. As developing readers, students read works by Caesar, Cicero, and other classical Latin authors. These authors are read with consideration for and attention to the cultural and political milieu in which they wrote.

Prerequisite: A final grade of C or higher in Latin 2 and/or faculty recommendation

ADVANCED LATIN 3 (Full Year, 1 Credit)

Advanced Latin 3 is an introduction to Latin prose and poetry with an emphasis on Roman historical texts. Attention is paid to developing sustained reading of original Latin texts, and the most complicated aspects of Latin grammar are introduced. Students read works by Cicero, Caesar, Catullus, and other classical Latin authors. Students will cover the first units of the Advanced Placement curriculum with continued exploration in Honors Latin 4.

Prerequisite: A final grade or final exam grade of at least A- in Latin 2 and/or faculty recommendation

LATIN 4 (Full Year, 1 Credit)

Latin 4 is a course that offers an intensive study of Latin poetry with an emphasis on Vergil's *Aeneid* and Ovid's *Metamorphoses*. By the end of this course, students will be able to translate large sections of poetry with comprehension, scan dactylic hexameter, recognize rhetorical devices and figures of speech and contextualize the literature they read within the social and political milieu.

Prerequisite: A final grade of C or higher in Latin 3 and/or faculty recommendation

HONORS LATIN 4 (Full Year, 1 Credit)

Honors Latin 4 is course that offers an intensive study of Latin prose and poetry with an emphasis on Caesar's *De Bello Gallico* and Vergil's *Aeneid*. By the end of this course, students will be able to translate large sections of prose and poetry with comprehension, scan dactylic hexameter, recognize rhetorical devices and figures of speech and contextualize the literature they read within the social and political milieu. The pace of this course provides the student with the opportunity to take the Advanced Placement Exam, if they choose.

Prerequisite: A final grade of A- or final exam grade of at least a B+ in Latin 3 and/or faculty recommendation

HONORS LATIN 5 (Full Year, 1 Credit)

Honors Latin 5 is a seminar-style class designed for students who have completed the four-year Latin program. The course consists of critical reading and evaluation of literary works. Grammar is thoroughly reviewed. Emphasis is placed on lyric poetry, philosophy, and comedy.

Prerequisite: A final grade of C or higher in Latin 4 or Honors Latin 4 and/or faculty recommendation

SPANISH 1 (Full Year, 1 Credit)

In Spanish 1, students are given the vocabulary and grammar tools necessary to express themselves in everyday communicative tasks using both the present and past tenses. Emphasis is put on the basic language skills of reading, writing, speaking, and listening, and on the principles embodied in the five C's of foreign language: communication, cultures, connections, comparisons, and communities. This course is designed for the student with no previous knowledge of the language; it can, though, also be used as a review of Spanish studied previously. *Students will be expected to earn at least a C and have faculty recommendation in order to advance to Spanish 2.

SPANISH 2 (Full Year, 1 Credit)

Spanish 2 is conducted in Spanish and is a continuation and expansion of the vocabulary and grammatical structures learned in Spanish 1. Students will be able to communicate utilizing all tenses to express past, present, and future as well as opinions and hypotheticals. Students participate in conversations, discussions, and oral and writing exercises. The students are exposed to authentic materials such as news articles, music, television commercials, soap operas, as well as literary selections like poetry and short stories. Students will be expected to achieve at least a C in order to continue to Spanish 3 and/or an A- to continue to Advanced Spanish 3.

Prerequisite: A grade of C or higher in Spanish 1 and faculty recommendation

SPANISH 3 (Full Year, 1 Credit)

Spanish 3 is designed to develop and refine proficiency in all four language skills – reading, writing, listening and speaking. Conducted entirely in Spanish, it includes grammar review, vocabulary development, and engages students in communicative exercises. Materials include a selection of contemporary articles as well as literary, cultural, and multimedia texts. Reports and oral presentations strengthen understanding of the target language. This course completes the foreign language graduation requirement.

Prerequisite: A final grade or final exam grade of at least a C in Spanish 2 and/or faculty recommendation.

ADVANCED SPANISH 3 (Full Year, 1 Credit)

Advanced Spanish 3 is designed to develop and refine proficiency in all four language skills – reading, writing, listening, and speaking. Conducted entirely in Spanish, it includes grammar review, vocabulary development, and engages students in communicative exercises. Reading materials include a selection of contemporary articles and literature. Reports and oral presentations are used to strengthen understanding of the target language. This course not only completes the foreign language graduation requirement; it is also designed to prepare students for standardized national foreign language testing.

Prerequisite: A final grade or final exam grade of at least A- in Spanish 2 and/or faculty recommendation.

SPANISH 4 (Full Year, 1 Credit)

Spanish 4 is designed for students who are interested in pursuing higher language proficiency in listening, speaking, reading, and writing. Students will communicate with native speakers, write about selected literary topics, and discuss current events and personal issues with relative ease. Taught completely in Spanish, this course also includes a review of advanced Spanish grammar. After completing extensive reading, students will produce written projects and present oral reports.

Prerequisite: A final grade of at least C in Spanish 3 and/or faculty recommendation

HONORS SPANISH 4 (Full Year, 1 Credit)

Honors Spanish 4 is a Pre-Advanced Placement course that is in alignment with the Advanced Placement format. The course is designed for students who are interested in pursuing higher language proficiency in listening, speaking, reading, and writing. Students will communicate with native speakers, write about selected literary topics, and discuss current events and personal issues with relative ease. Taught completely in Spanish, this course also includes a review of advanced Spanish grammar. After completing extensive reading, students will produce written projects and present oral reports. Students will prepare for the SAT Subject Test based on instructor's recommendation. Honors Spanish 4 is designed for students interested in taking the Spanish Language Advanced Placement Examination in the following year.

Prerequisite: A final grade of at least A- in Advanced Spanish 3 and/or faculty recommendation

SPANISH 5 (Full Year, 1 Credit)

Spanish 5 is designed as a continuation and expansion of Spanish 4. It is a course for students not interested in taking, or ready to take, the Advanced Placement Examination who desire to develop further knowledge of Spanish grammar, vocabulary, and conversation skills in the context of a broad study of Spanish history and culture. Special emphasis is placed on current events. At this level, research papers, reports, and oral presentations integrating technology are important ways of developing the students' presentation skills, cultural awareness, and language proficiency.

Prerequisite: A final grade or final exam grade of at least C and/or faculty recommendation

HONORS SPANISH 5 (Full Year, 1 Credit)

This intense course is intended to prepare students for the Advanced Placement Examination. Students at this level are studying a course equivalent to a third-year college course in advanced Spanish composition and conversation. According to the College Board standards, this course emphasizes the use of Spanish for active communication, and it encompasses aural/oral skills, reading comprehension, grammar, and composition. The overall objectives are: to comprehend formal and informal spoken language, to acquire vocabulary and a grasp of structure to allow the easy and accurate reading of newspaper/magazine articles and modern literature in Spanish, to compose expository passages, and to express ideas orally with accuracy and fluency. This course also seeks to develop language skills that are broadly useful and that can be applied to various activities and disciplines.

Prerequisite: A final grade of at least B+ in Honors Spanish 4 and/or faculty recommendation

FINE AND PERFORMING ARTS DEPARTMENT (1 Credit Required)

The goal of the Fine and Performing Arts is to foster students' art education in a positive and productive atmosphere. It encourages both creativity and critical thinking while expecting artistic excellence and self-discovery. It strives to develop the whole child through enjoyment, exploration, and understanding of Art, Music, and Theater. While developing this sense of artistic fluency, students learn multiple models of self-expression and cultivate their role in an ever-changing cultural environment; they learn that the Arts are an essential and enduring part of the global human experience.

FOUNDATIONS OF STUDIO ART (Full Year, 1/2 Credit)

In this course, students study the formal elements and principles of design and composition as well as selected artists and styles. **Foundations of Studio Art is a prerequisite for most Fine Arts courses.**

2-D STUDIO ART (Full Year, 1/2 Credit)

This studio-based course explores the techniques, composition, and content of drawing and painting. Students study past and contemporary artists' works and become acquainted with a variety of drawing materials and opaque and transparent painting mediums. Students are asked to express growth and individuality through their use of materials. Keeping an up-to-date, high-quality personal sketchbook is a requirement. Students who wish to take this class for a second time should request **2DSTART2**.

Prerequisite: Foundations of Studio Art

CERAMICS 1 (Full Year, 1/2 Credit)

Ceramics 1 is an introduction to making functional vessels on the potters' wheel as an expressive art. Students will focus on physical throwing skills, three-dimensional design concepts and creative problem solving as they relate to the functional ceramic vessel. Over the course of the school year, students will make cylinders, bowls, mugs, lidded jars, and sculptural vessels.

Prerequisite: Foundations of Studio Art

CERAMICS 2 (Full Year, 1/2 Credit)

Ceramics 2 is an intermediate studio course. Students will continue their understanding of the decorative and functional arts on the potters' wheel. Over the course of the school year, students will work with stoneware and porcelain to create teapots, large vessels, and intricate sets of work. Students will also learn how to mix clay, glazes, and fire gas and electric kilns.

Prerequisite: Ceramics 1

CERAMIC SCULPTURE (Full Year, 1/2 Credit)

Ceramic Sculpture is a studio-based introduction to hand-built ceramic sculpture. Students will learn various methods of working with clay including coil, slab, solid, and extruded forms. Students will explore surface design and texture with paints, glazes, and mosaic work. Emphasis will be placed on technical skill, the relationship of form to concept, and the processes used in making ceramic sculpture. Students will make abstract, representational, and human/animal sculptures.

Prerequisite: Foundations of Studio Art

SCULPTURE (Full Year, 1/2 Credit)

The emphasis in this studio course is on the unique qualities of sculpture, including its three-dimensional and tactile nature. Assignments focus on specific realistic and/or abstract problems. The work of well-known artists is studied in order that the students see both the practical and the creative aspects of sculpting. Students complete their projects using materials such as plaster, wood, and metal.

Prerequisite: Foundations of Studio Art

GRAPHIC DESIGN (Full Year, 1/2 Credit)

This course introduces students to the art of visual communication through images, symbols, and text. Students will work to represent ideas and deliver messages through visual compositions. Adobe Illustrator and InDesign will be used to learn the importance of graphics, typography, and layouts. Traditional hands-on techniques will be combined with digital processes for a fully immersive experience.

Prerequisite: Foundations of Studio Art

PHOTOGRAPHY 1 (Full Year, 1/2 Credit)

Photography 1 students learn about the various functions of the camera as well as how to control composition and exposures to produce excellent images. The emphasis will be on capturing images digitally and manipulating them through the use of Photoshop and other photo editing applications.

Prerequisite: Foundations of Studio Art

PHOTOGRAPHY 2 (Full Year, 1/2 Credit)

Second-year photography students are encouraged and expected to develop a body of images that demonstrate a high level of conceptual thought, originality, technical skill, and personal vision. The Photography 2 course emphasizes creative thinking and individual expression through independent work on conceptually themed projects.

Prerequisite: Foundations of Studio Art and Photography 1

PORTFOLIO ART (Full Year, 1 Credit)

This course provides opportunities for intense studio experiences and portfolio development. Students are encouraged to participate in local and statewide competitions. Students meet daily and must be self-motivated as the workload is demanding. Upon electing to take this class, students declare a major area of study. **This course is available to Juniors/ Seniors only.**

Prerequisite: Previous art experiences and the recommendation of the instructor.

TREBLE CHOIR (Full Year, 1/2 Credit)

Treble Choir is open to soprano/alto singers in grades 9-12. This course is recommended for soprano/alto students who are new to the choir program, Upper School and/or to Columbus Academy.

Students will learn:

- Sight reading skills
- Healthy singing, including breath support and quality of tone
- Interpretation of music including: tempo, phrasing, expression, style, and dynamics.
- A variety of quality choral literature
- Proper music technique including: note accuracy, rhythmic accuracy, articulation, diction, and posture
- Intonation, including how to blend and balance with an ensemble

- The Treble Choir will perform at the Fall Concert, Winter Concert, Cabaret, and Commencement. Members of this group are also eligible to compete in OMEA Solo and Ensemble. If a scheduling conflict prevents enrollment in Camerata, male singers may request to be scheduled in Viking Choir, which meets at the same time as Treble Choir.

CAMERATA (Full Year, 1 Credit)

Camerata is a course for returning soprano / alto singers in grades 10-12 and for ALL male singers. Rising 9th Grade soprano / alto and soprano / alto singers new to the choir program, Upper School, and/or to Columbus Academy should register for the Viking Treble Chorus. This course emphasizes four basic areas of study: performance skills, rehearsal skills, vocal skills, and musicianship. Camerata focuses on music theory and the advancement of sight-reading skills.

Students will learn:

- Sight reading skills
- Healthy singing, including breath support and quality of tone
- Interpretation of music including: tempo, phrasing, expression, style, and dynamics
- A variety of quality choral literature
- Proper music technique including: note accuracy, rhythmic accuracy, articulation, diction, and posture
- Intonation, including how to blend and balance within an ensemble

Students meet 6 days out of 6. Camerata will perform at the Fall Concert, Winter Concert, Cabaret, and Commencement. They will also compete at OMEA Large Group Competition. Members of this group are eligible to compete in OMEA Solo and Ensemble.

Prerequisite: Recommendation of the instructor

ACADEMY CONCERT BAND (Full Year, 1 Credit)

The Academy Concert Band is open to students whose playing ability is equivalent to that of an average 8th grade band student and above. An evaluation may be requested to determine the student's proficiency. The Concert Band performs in at least three required concerts, which may include OMEA District Contest for Large Group as well as the OMEA Solo and Ensemble Contest. Concepts covered include intonation, tone development and articulation, rhythmic literacy, and ensemble techniques (i.e. blend and balance).

- Pep Band- performs popular music at home football games and a few select weekend basketball games as well as pep rallies.
- Concert Band- performs at fall, winter, and spring concerts levels of music comparable to OMEA Class C and B band music as well as various film and contemporary band music. Also performs at commencement in June.
- Solo & Ensemble- students are encouraged to participate in this event, though it is not mandatory and does not affect a student's grade.

ACADEMY JAZZ ENSEMBLE (Full Year, 1/2 Credit)

The Jazz Ensemble offers students an opportunity to explore the Jazz experience in both performance and musicianship. More advanced instrumental experience is strongly recommended for this course; **an audition required for all instrumentalists**. Students perform in a number of settings, including the spring's All That Jazz dessert concert, a Fall concert, and various festivals around Columbus. Although this course is open to freshmen and advanced middle school musicians, a full year of Concert Band is highly recommended. Jazz Ensemble is considered an advanced course and requires

a moderate amount of home practice. This class meets during zero period (7:15-8:00am) Mondays, Tuesdays, and Thursdays with occasional Friday rehearsals.

- Styles covered include swing, latin, rock, samba, ballad, be-bop, and blues
- Artists covered include Duke Ellington, Dizzy Gillespi, Herbie Hancock, Glenn Miller, Benny Goodman, and Miles Davis
- Improvisation is a major component of this course and will be taught through the Blues as well as 16-bar forms
- Solo & Ensemble- students are encouraged to participate in this event, though it is not mandatory and does not affect a student's grade.

ACADEMY STRING ORCHESTRA (Full Year; 1/2 Credit)

Academy String Orchestra is open to students in Grades 9-12. This class focuses on repertoire for high school orchestras including music from an assortment of genres such as pop, rock, classical, and jazz. Performances typically include at least three major concerts, OMEA solo and ensemble competition, and community concerts. Touring trips are planned every three years.

ADVANCED ORCHESTRA (Full Year; 1/2 Credit)

Advanced Orchestra is open to students in Grades 9-12. This class focuses on original music from classical and contemporary periods. Performances typically include at least three major concerts, OMEA solo and ensemble competition, and community concerts. This class receives weighted grades. Touring trips are planned every three years. **Students are accepted by audition or recommendation.**

MUSIC THEORY (Full Year, 1/2 Credit)

The first year of Music Theory introduces the fundamentals of music including, but not limited to, notes, rhythm, intervals, chords, and voice leading. At the end of the course, students will be able to analyze music written in four-part harmony (Bach-style) as well as compose their own four-part harmonic pieces. Units covered include:

- Note literacy
- Rhythmic literacy
- Intervals
- Chord structures
- Figured Bass, Roman Numeral Analysis
- Voice leading
- Composing melodies
- Chord progressions

HONORS MUSIC THEORY (Full Year, 1/2 Credit)

The second year of Music theory continues to build upon the fundamentals of music. Areas of study focus heavily on aural skills rather than the analytic, written work of Music Theory 1. Students may be asked to take an entrance exam to be admitted to Honors Music Theory. At the end of this course, students will be ready to take the AP Music Theory Exam (not required). **Prerequisite: Music Theory and Teacher Recommendation**

Units covered include:

- Sight-singing using Solfege
- Melodic Dictation
- Harmonic Dictation
- Secondary Dominants
- Non-Chord Tones
- Basic Form and Analysis
- Error Detection (aural)
- Modal concepts
- Forms (Sonata, AABA, etc)
- Performance concepts (tempos, techniques, etc)

PORTFOLIO TECHNICAL THEATER (Full Year, 1 Credit)

This class is for students who are looking for a deeper understanding of “the other side of the stage”, characterization, and direction. This is an Independent Study course that will allow students who are interested in theater to further their studies within a specific field. Each student will take on the responsibility of designer for each Columbus Academy production. The specific field or interest will be decided by the student and instructor. The final project will be a ten-minute DVD showcasing each individual’s work within his or her field of interest which can also be used for college entrance applications. This class is limited to 10-12 students. **Foundations of Studio Art is strongly recommended.**

Prerequisite: Students must interview with Mr. Dillon BEFORE requesting this course.

Students will explore:

- Lighting Design
- Set Design
- Sound Design
- Costume Design
- Makeup Design
- Master Carpentry
- Stage Managing

ART HISTORY (Full Year Elective, 1/2 Credit)

This course is a survey covering two and three-dimensional art forms and architecture from prehistory to the present. The vision and record of artists and designers are emphasized. At its conclusion, students should have a greater appreciation for creative personal expression and be prepared to look at art insightfully. *History of Modern Art* (Arnason/Mansfield) is the primary text. Supportive studio exercises and writing compliment classes. Independent study offers the opportunity for students to consider taking the Advanced Placement Examination.

THEATER AND STAGE MOVEMENT (Full year, 1/2 Credit and 2 PE Units)

In the first semester, students will explore the art of acting and directing using techniques inspired by past and present practitioners of theatre. Integrated methods foster creation founded characters, exploration of directing their peers, and focus on a collaborative and empathy-driven art form through plays, scene work, and monologues (classical and modern; scripted and original pieces). In the second semester, students will survey techniques founded in (but not limited to) Viewpoints,

Suzuki, Laban, Comedia, and modern and theatrical dance. While creating and exploring artistic expression, students will make movement pieces that tell a story while still achieving a strenuous physical practice. Students will learn about practitioners of movement and dance, while implementing their techniques. Projects in this course will be crafted to the individual needs, skill level, and interests of the student, and could provide material for college auditions and portfolios. The class may also result in performance opportunities independent of the US Fall Play and US Musical. *By taking the Theater and Stage Movement course, students will earn ½ credit in Fine Arts and 2 Physical Education units.*

Prerequisite: None (No previous dance experience needed)

PHYSICAL EDUCATION DEPARTMENT
(6 Units Required – Physical Education)

PHYSICAL EDUCATION UNITS: For students entering the Upper School as a Freshman, a total of six Columbus Academy Physical Education units is required. For students entering as a Sophomore, a total of four Columbus Academy PE units is required. For students entering as a Junior, a total of two Columbus Academy PE units is required. Columbus Academy PE units may be obtained by completing a season on one of our athletic teams (2 units), by taking the full-year Theater and Stage Movement class (2 units), or by submitting a Physical Education Alternative Form for participation on an athletic team for a sport/activity that is not offered at Columbus Academy (2 units). A student may earn no more than 2 units per year.

ADDITIONAL REQUIRED AND ELECTIVE COURSES

ETHICS AND COMMUNITY (Full Year – REQUIRED for Grade 10)

The purpose of the Ethics and Community course is to introduce students to the thoughtful study of values, ethics, and character. The lives and loyalties of older students are more complicated than those of young children. Without new tools to confront their new reality, students at this age can grow confused, frustrated, and even skeptical about what it means to “do the right thing.” In this course, they will learn about the role of shared values in binding communities, and why conflict in community exists even when values are shared. They’ll explore the limits of value-claims made by particular communities (i.e., It’s wrong to do that here and now.) versus value-claims made universally (i.e., It’s wrong to do that anywhere and at anytime). Students will also learn that truly tough ethical decisions often pit two “rights” against each other. (i.e., Do I tell the truth or stay loyal to my friend?). They will be introduced to schools of thought that will help them untangle these true dilemmas, which are an inescapable part of their emerging adulthood. Finally, these new ideas will be placed into the larger context of character. Being able to reason through complex ethical situations is important, but a full picture of character also includes feeling and action. Based on this description of character, students will explore the meaning of “integrity” and be encouraged to grow in the direction of integrated thought, feeling, and action.

FRESHMAN RESEARCH (3/4 Year – REQUIRED for Grade 9)

Emphasizing guided inquiry and the research process, the Freshman Research class will introduce students to research and study skills that will compliment research that is required in many of their other classes. This course will build a foundation for thinking critically and conducting more in-depth research as they progress through high school. Topics include choosing, narrowing and broadening topics; gathering, identifying, evaluating, and organizing many types of information; proper citation; and digital citizenship (copyright, plagiarism, fake news).

HEALTH (Full Year, 1/4 Credit – REQUIRED for Grade 9)

The Health curriculum is based on the concept of providing the knowledge and skills necessary for students to make responsible, well-informed choices that promote a healthy lifestyle. The students are encouraged to take personal responsibility and to utilize critical thinking skills when looking at current health topics and how they impact their daily lives. Topics include personal and mental health, drug and alcohol prevention, stress management, eating disorders, human growth and development, relationships, sexually transmitted diseases, cancer awareness and early detection, and CPR certification. Students will participate in a variety of teaching and learning methods such as class discussions, role-playing, videos, projects, tests, and demonstrations.

BEGINNING JOURNALISM (Semester 1 or 2 Elective, 1/4 Credit)

This one-semester course introduces reporting techniques to students who are new to journalism. Exercised will include drills in covering arts and entertainment, news, and sports. Attendance and completed homework assignments account for the class’s grade. This course is a prerequisite for staff positions on the school newspaper, *The Academy Life*.

JOURNALISM 2, 3, or 4 (Full Year Elective, 1/4 credit)

This is a full-year class for 2nd, 3rd, and 4th year *Academy Life* staff members. Students who are enrolled in this class are required to post bi-weekly articles in a specifically assigned category. Class attendance and meeting deadlines are required.

JOURNALISM EDITOR 2, 3, or 4 (Full Year Elective, 1/2 credit)

This is a full-year class for 2nd, 3rd, and 4th year *Academy Life* editors. Editors will meet twice a week, compose editorials and opinions, proofread staff articles.

Prerequisite: Beginning Journalism and Journalism 2

PUBLIC SPEAKING (One Semester, 1/4 Credit – REQUIRED for Grade 11)

Public Speaking, a required course for juniors, introduces students to various techniques of oral expression. Each student learns to overcome natural fears and speak with relative ease, clarity and organization. Enunciation, expression, eye contact, volume, poise, and the content of each presentation are evaluated. A formal speech, delivered to the Upper School and parents, fulfills a graduation requirement and upholds one of Columbus Academy's oldest traditions.

SPEECH AND DEBATE (Full Year Elective, 1/2 Credit)

Grades for this class are determined by class attendance and participation in research and preparation for debate tournaments. Students are required to commit to three debate tournaments. Matches take place from October through March. Columbus Academy competes in Congress, Declamation, Lincoln-Douglas, Public Forum and US Extemporaneous.

GLOBAL ONLINE ACADEMY (One Semester or Full Year Elective)

Program description coming soon.

MALONE SCHOOLS ONLINE NETWORK (One Semester or Full Year Elective)

Program description coming soon.

EXTRA-CURRICULAR OFFERINGS IN THE UPPER SCHOOL

Each year the Upper School offers extra-curricular options. Students who have genuine interest are encouraged to get involved in one or more activities. In addition to the list below, new clubs are welcomed which are all-inclusive and must have a faculty sponsor. We encourage student initiative in the forming and developing of activities.

UPPER SCHOOL ACTIVITIES AND CLUBS	
<ul style="list-style-type: none"> ○ <i>Academy Life</i> (School Newspaper) ○ Academy Rubix Cubing Club ○ Art Society ○ Asian Affinity Club ○ Black Organization of Students (BOS) ○ Bowling Club ○ Card Club ○ China Club ○ Creative Writing Club (CWAC) ○ Debate Club ○ Debate Team ○ Desi Club (South Asian Affinity Group) ○ Disney Club ○ Economics Club ○ Euchre Society ○ Future Leaders in Health ○ GROW (Gender Equity Issues) ○ Gay/Straight Alliance (GSA) ○ Harry Potter Club ○ Home Economics ○ In-The-Know ○ Investment Club ○ Jewish Club ○ Journey 511 (Christian Alliance) 	<ul style="list-style-type: none"> ○ Knitting Club ○ Latin Club ○ LGBTQ Affinity Group ○ Math Club ○ MECCA (Muslim Affinity Group) ○ Meditation Club ○ Music Club ○ Pokemon Club ○ Political Club ○ <i>Quest</i> (Art and Literary Magazine) ○ Robotics Club ○ Service Board ○ Science Society ○ Science Olympiad ○ Social Justice and Sustainability Committee (SJSC) ○ Student Council ○ Theater (Fall Drama/Spring Musical) ○ <i>The Caravel</i> (Yearbook) ○ The Water Cooler (Reality TV Discussion Group) ○ Ultimate Frisbee Club (UFC) ○ Victorian International Political Simulation Club (VIPS) ○ World Soccer Club

UPPER SCHOOL INTERSCHOLASTIC ATHLETICS		
Fall	Winter	Spring
<ul style="list-style-type: none"> ○ Cross Country (boys/girls) ○ Field Hockey (girls) ○ Football (boys) ○ Golf (boys/girls) ○ Soccer (boys/girls) ○ Tennis (girls) ○ Volleyball (girls) 	<ul style="list-style-type: none"> ○ Basketball (boys/girls) ○ Bowling (boys/girls) ○ Swimming (boys/girls) ○ Wrestling (boys) ○ Ice Hockey (boys/girls/JV only) 	<ul style="list-style-type: none"> ○ Baseball (boys) ○ Lacrosse (boys/girls) ○ Tennis (boys) ○ Track (boys/girls)

Grade Weighting System

A sliding scale of grade weighting is used to determine grade point average (GPA). Standard weighting on a four-point scale will be applied to normal college preparatory courses. An additional ten percent weight will be added to grades in “Advanced” courses, and an additional fifteen percent weight to grades in “Honors” courses. See the chart on the next page for listings of course weights.

Advanced courses indicate accelerated versions of our college-preparatory courses. **Honors** courses indicate those designed predominantly to prepare students for a college level, external examination. Courses that cover two years’ worth of material in one year are also included. Prerequisite criteria must be met for entry to Advanced and Honors courses.

Weighted (wGPA) grade point averages are reported on the transcript and on documents sent to colleges and scholarship agencies. The Columbus Academy does **not** calculate class rank.

Grading and Weighting Scale

Description	Grade	Scale %	Normal Unweighted	Advanced Weight +10%	Honors Weight +15%
Outstanding	A+	97-100	4.333	4.667	4.833
Superior	A	93-96	4.000	4.333	4.500
Superior	A-	90-92	3.667	3.999	4.167
Well Qualified	B+	87-89	3.333	3.666	3.833
Well Qualified	B	83-86	3.000	3.333	3.450
Well Qualified	B-	80-82	2.667	2.933	3.067
Qualified	C+	77-79	2.333	2.567	2.683
Qualified	C	73-76	2.000	2.200	2.300
Qualified	C-	70-72	1.667	1.833	1.917
Poor	D+	67-69	1.333	1.467	1.533
Poor	D	63-66	1.000	1.100	1.150
Poor	D-	60-62	0.667	0.733	0.767
Failing	F	Below 60	0.000	0.000	0.000
Passing	P		0.000	0.000	0.000
Outstanding	O		0.000	0.000	0.000
Incomplete	I		0.000	0.000	0.000
Withdrew	W		0.000	0.000	0.000

Note: Weighting shall not exceed a maximum of .33 additional weight in the 10% column or .50 additional weight in the 15% column.

Weighting Table for Designated Courses

Department	STANDARD COURSES	ADVANCED COURSES	HONORS COURSES
	Unweighted	Weight + 10%	Weight + 15%
English	English 9 English 10 English 11/12 - S1 English 11/12 - S2	Advanced English 10	Honors English 11/12 - S1 Honors English 11/12 - S2
History	Human Geography Modern World History United States History Black Studies Economics Psychology SPARC Social Research Methods	Advanced Moral Philosophy-S1 Advanced Moral Psychology-S2	Honors Modern World History Honors United States History Honors Comp Government-S1 Honors U.S. Government-S2 Honors Economics Honors Modern European History
Mathematics	Integrated Algebra B Geometry Algebra 2 Pre-Calculus Quantitative Reasoning	Advanced Geometry Advanced Algebra 2 Advanced Pre-Calculus Advanced Calculus Advanced Statistics	Honors Algebra 2 & Pre-Calculus Honors Calculus 1 Honors Calculus 2 Honors Calculus 1 & 2 Hon Calc-Based Probability & Stats Multivariable Calculus
	Intro to Computer Science		Honors Computer Science 1 Honors Computer Science 2 Honors Computer Science 3
Science	Biology Chemistry Physics Physics: Inquiry-Based Anatomy and Physiology Astronomy-S2 Biology 2-S1 or S2 Environmental Science Geological Sciences-S1 Physics 2: Robotics-S1 Physics2: Electronics -S2	Advanced Biology Advanced Chemistry Advanced Physics 1 Advanced Physics 2	Honors Biology Honors Chemistry Honors Physics
World Languages	Chinese 1 Chinese 2 Chinese 3 Chinese 4 Chinese 5 Latin 1 Latin 2 Latin 3 Latin 4 Spanish 1 Spanish 2 Spanish 3 Spanish 4 Spanish 5	Advanced Chinese 3 Advanced Latin 3 Advanced Spanish 3	Honors Chinese 4 Honors Chinese 5 Honors Latin 4 Honors Latin 5 Honors Spanish 4 Honors Spanish 5
Other Course Offerings	Beginning Journalism (S1 or S2) Journalism 2, 3, or 4 Journalism Editor 2, 3, or 4 Freshman Research <i>Global Online Academy</i> Health <i>Malone Scholar Online Network</i> Public Speaking Speech and Debate		

Students must apply to take part in these course offerings.

Advanced and Honors Courses at Columbus Academy

General Guidelines: Honors courses are college level courses that frequently adhere to a national standardized curriculum. These courses give prepared and qualified students an opportunity to pursue their passion for a particular subject by taking a demanding, in-depth course that will provide both accelerated learning and an opportunity to take the national Advanced Placement Exams in May. Students who take an AP also have the opportunity to earn college credits for their high school work if they score a three or higher (out of five) on an exam; however, they should keep in mind the following: 1) some colleges accept only 4 or 5 scores for credit; 2) some use the exam only for placement; 3) some will still have students repeat the course in college even if they pass the exam; 4) poor grades in Honors classes will not enhance their college application and indeed can be used to "weed out" applicants.

What kinds of questions should students ask before committing to Advanced and Honors courses?

- Do I really enjoy this subject enough to consider devoting so much time and energy to this class?
- Will taking this Advanced or Honors class or these classes allow me time to pursue other aspects of my participation at Academy, such as drama, athletics, service and my other academic responsibilities?
- Do the colleges to which I am considering applying give credit for this Honors course if I pass the corresponding AP exam?
- What AP test score is required by a college to receive credit? (Colleges vary.)
- Do colleges place students in courses based on AP results, or will I also be required to take a placement exam?

Important Information for students participating in the Advanced and Honors program:

- Each Advanced and Honors course has a set of prerequisites that must be met in order to enroll in that course.
- Students are encouraged to take the AP Exams in May, although each department has its own specific expectations about taking them. The fee varies each year and, when applicable, can be applied to the student's account. The scheduled dates and times for the exams are announced early in the school year and are published in the school calendar.

Admission into Advanced and Honors Classes

All students must inform their current instructor(s) about their intention to appeal course recommendation(s) by the specified date in May.

English

- To go from an Advanced or Honors class to the next level Honors class requires a B or better and the recommendation of the instructor.
- To go from a non-weighted class to the next level Advanced or Honors class requires an A- and the recommendation of the instructor.

Students who were not recommended for an Advanced or Honors Class and who wish to appeal their placement may do so by meeting with their current instructor and submitting their course request form by **the first week of May**. Students may appeal the decision by submitting a portfolio of three graded writing assignments from the current school year and a written reflection piece on the work within the portfolio. The portfolio will be due mid-May. Students electing to go through the appeals process must also take a timed writing assessment.

History

- To go from an Advanced or Honors class to the next level Honors class requires a B or better and/or recommendation of the instructor.
- To go from a non-weighted class to the next level Advanced or Honors class requires an A- or better and recommendation of the instructor.

Students who were not recommended for an Advanced or Honors Class and who wish to appeal their placement may do so by meeting with their current instructor and submitting their course request form by **the first week of May**. Petitioning students may be asked to meet with their current teacher and the History Department Chair and will be required to take a timed writing assessment.

Math

Placement decisions are based on a combination of previous course grades and classroom work, teacher recommendations, student aptitude and interest, parent recommendations, and standardized test results. Continuation in Advanced or Honors courses is based upon these criteria as well as overall student schedule balance.

Students who were not recommended for an Advanced or Honors Class and who wish to appeal their placement may do so by meeting with their current instructor and submitting their course request form by **the first week of May**. At that time, all petitions for appeal will be reviewed by the Upper School Mathematics Placement Committee. A placement test may be required to inform the placement decision.

Science

- To go from an Advanced or Honors class to the next level Advanced or Honors class requires a B+ or better and/or recommendation of the instructor.
- To go from a non-weighted class to the next level Advanced or Honors class requires an A or better and/or recommendation of the instructor.

Students who were not recommended for an Advanced or Honors Class and who wish to appeal their placement may do so by meeting with their current instructor and submitting their course request form by **the first week of May**. A student petitioning to enter Advanced Chemistry or Advanced Physics may be asked to demonstrate math and science proficiency. Students petitioning to enter Advanced Biology must meet with Advanced Biology instructor. Petitions must be submitted to the Department Chair by **the Wednesday before Commencement**.

World Languages

- To go from Spanish 2 to Advanced Spanish 3 requires an A- or better, consideration of final exam, and /or recommendation of the instructor.
- For Spanish, to go from an Advanced or Honors class to an Honors class requires an A- or better, consideration of final exam, and/or recommendation of instructor.
- For Chinese, to go from an Honors class to an Honors class requires an A- or better, consideration of final exam, and/or recommendation of instructor.

Students who were not recommended for an Advanced or Honors Class and who wish to appeal their placement may do so by meeting with their current instructor and submitting their course request form by **the first week of May**.

Because of the difference in pace and depth between non-weighted classes and Advanced/Honors classes, with rare exceptions, students in non-weighted classes will not be placed in Advanced or Honors classes. These students may be placed in Advanced or Honors classes at the discretion of the instructor and the Department Chair.

Community Service

The Upper School service program is directed primarily through a student organization known as the Service Board. Modeled on Student Council but with community service as its charge, the Service Board is led by two students who are elected annually and at the same election as the Student Body President/VP. Membership to the Service Board is open to all Upper School students; however, members are bound by annual contract. In the last few years, due to the number of interested students, a middle management tier and internal advisory board known as the Shapers has been created. Shapers (about 8 per grade) are drawn from the Service Board membership and must petition for positions. In addition to these activities, the Service Board manages the Upper School community service graduation requirement. For an explanation of the Service Board's policies and procedures regarding the US Service requirement, please see the Service Board website:
<https://sites.google.com/columbusacademy.org/serviceboard>

Curricularly generated community service opportunities are developing in a range of areas both on and off of Columbus Academy's campus. Upper School ceramics students make hundreds of bowls for our annual Empty Bowls/Soup 4 Shelter event held each December. All proceeds from the event are used to support a Habitat for Humanity Wall Build each August. Grade 3 students make frequent visits to local retirement/assisted living residences to spend time with the elderly. Lower School students make cookies/treats to supplement the meal that Upper School students serve to homeless men at Faith Mission each month.

While many service related activities also fall under the auspices of the Service Board, clubs, student organizations, and the other two divisions enjoy the opportunity to pursue programs that fit with their practices or are age-appropriate. Club generated activities need to abide by Columbus Academy's fundraising and service policies. Questions concerning acceptable activities should be directed to the Service Department and its chair.

As part of its mission to develop responsible citizens who are "eager to engage in a pluralistic and ever-changing world," Columbus Academy requires its students to engage in community service work. Through school programs and a fifty (50) hour graduation requirement students will be encouraged to develop the habit of sustained community service.

In order to receive a Columbus Academy diploma, upper school students are expected to attend one (1) Service Day per year and to complete fifty hours of community service: five (5) hours in support of CA programs or at CA and forty-five (45) hours off CA's campus with one agency, group, or at one site.

To fulfill the off-campus portion of the service requirement, students have the freedom and flexibility to select their own agencies in order to pursue individual interests so long as their work meets with the approval of the Service Board. Prior to starting the requirement, service work must be approved by the Service Board. For information regarding the Service Board's practices, policies, paperwork, and guidelines, please see the Service Board website.

[https:// sites.google.com/columbusacademy.org/serviceboard/faqs?authuser=0](https://sites.google.com/columbusacademy.org/serviceboard/faqs?authuser=0)
<https:// sites.google.com/columbusacademy.org/serviceboard/forms?authuser=0>

Students have about 4 years* to complete the requirement. They may begin fulfilling the requirement once they have completed the eighth grade and must be finished with the off-campus portion of the requirement by the second Wednesday after spring break of the SENIOR YEAR. The five CA hours must be completed prior to a senior's departure for the senior project in May.

Students who miss an annual Upper School Service Day will have five (5) hours added to their graduation requirement. The only acceptable excuses for absence are religious observation and death of an immediate family member.

Failure to complete the 45 hour off-campus portion of the requirement *by the second Wednesday after spring break of the senior year* will result in a senior's forfeiture of senior project choice and any hours accrued to date. Fifty hours will be added to the senior project hours (~60 hours), and the student will complete ~110 hours of community service during the senior project period in May of the senior year.